A STUDY ON ERP SOFTWARE RELATED TO MANUFACTURING INDUSTRY

Submitted in partial fulfillment of the requirements for the award of

Master of Business Administration

by

AVINASH B

Register No. 39410243

SCHOOL OF BUSINESS ADMINISTRATION

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited with Grade "A" by NAAC I 12B Status by UGC I Approved by AICTE
Jeppiaar Nagar, RAJIV GANDHI SALAI, CHENNAI - 600 119

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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **AVINASH B 39410243** who carried out the project entitled **"A Study on ERP Software Related to Manufacturing Industry"** under my supervision from January 2021 to March 2021.

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Submitted for Viva voce Examination held on_____

Internal Examiner **External Examiner**

DECLARATION

I **AVINASH B 39410243** hereby declare that the Project Report entitled **A study on ERP software related to manufacturing industry** done by me under the guidance of **Dr. DHIVYA SATHISH** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

DATE:

PLACE: **AVINASH B**

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AVINASH B

TABLE OF CONTENTS

ABSTRACT

There are various problems associated with manufacturing industries. Some of the problem are non-availability of highly skilled labor at affordable costs, absence of adequate knowledge, technology, low production capacity, ineffective marketing strategy, constraints on modernization & expansions, identification of new markets etc., It can be overcome by implementing powerful IT solution like ERP which offers multiple benefits to face global competition.

Aim of the study is about ERP software related to manufacturing industry. The objectives of the study are; to study on importance of ERP implementation in manufacturing industry, to study on various challenges in implementing ERP in manufacturing industry, to analyze about the employee awareness and opinion on ERP system, to study on impact, various advantages and benefits of ERP system and to measure the satisfaction level of employees on benefits of ERP system.

LIST OF TABLES

LIST OF CHARTS

CHAPTER – 1

INTRODUCTION

1.1 INTRODUCTION ABOUT THE STUDY

Enterprise resource planning (ERP) system is a business management system that comprises integrated sets of comprehensive software, which can be used, when successfully implemented, to manage and integrate all the business functions within an organization. These sets usually include a set of mature business applications and tools for financial and cost accounting, sales and distribution, materials management, human resource, production planning and computer integrated manufacturing, supply chain, and customer information. These packages have the ability to facilitate the flow of information between all supply chain processes (internal and external) in an organization. Furthermore, an ERP system can be used as a tool to help improve the performance level of a supply chain network by helping to reduce cycle times.It has traditionally been applied in capital-intensive industries such as manufacturing, construction, aerospace and defense.

ERP allows companies to integrate critical information into a cohesive format. For many users, an ERP is a “do it all” system that performs everything from entry of sales orders to customer service. It attempts to integrate the suppliers and customers with the manufacturing environment of the organization. For example, a sales order entered in the order management module passes the order to a manufacturing application, which in turn sends a materials request to the supply-chain module, which gets the necessary parts from suppliers and uses a logistics module to get them to the factory. At the same time the sales transaction shows in General Ledger module as revenue. The traditional application systems, which organizations generally employ, treat each transaction separately. They are built around the strong boundaries of specific functions that a specific application is meant to cater for. ERP stops treating these transactions separately as standalone activities and considers them to be a part of interlinked processes that make up the business (Gupta 2000).

ERP is now considered to be the point of entry for running a business, and at least at present, for being connected to other enterprises in a network economy to create “business to business” electronic commerce (Boykin, 2001). Furthermore, many multinationals restrict their business to only those companies that operate the same ERP software as the multinational firm. It is a fact that ERP is for big firms and smaller firms have to adjust their business model and approach according to the practices and software adopted by the big firms. With the opening up of the economy, small to medium sized enterprises (SMEs) have found the going very difficult. Since they do not have the robustness associated with large companies, SMEs have to tap the power of IT and an integrated information system to stay competitive and customer oriented. ERP is often considered the answer for their survival (Rao, 2000). Therefore, the ERP software market has become one of today’s largest IT investments worldwide.

In today's aggressive business environment it is essential to be prepared to face a vast and competitive world. In this time of diminishing global economic situation, the most worried sectors are the small and midsize businesses (SMBs). The large size, midsize manufacturing industries are highly utilizing ERP rather than the small size manufacturing industries. ERP systems integrate all data and processes of an organization into a unified system. A typical ERP will use multiple components of computer software and hardware to achieve the integration. A key ingredient of most ERP systems is the use of a unified database to store data for the various system modules. The ERP system is creating more impact on the company’s business efficiency.

1.1.1 ERP Systems Using IT to Gain A Competitive Advantage

In the past decade the business environment has changed dramatically. The world has become a small and very dynamic marketplace. Organizations today confront new markets, new competition and increasing customer expectations. This has put a tremendous demand on manufacturers to;

1) Lower total costs in the complete supply chain

2) Shorten throughput times

3) Reduce stock to a minimum

4) Enlarge product assortment

5) Improve Product quality

6) Provide more reliable delivery dates and higher service to the customer

7) Efficiently coordinate global demand, supply and production.

Thus today's organizations have to constantly re-engineer their business practices and procedures to be more and more responsive to customers and competition. In the 1990's Information technology and Business Process re-engineering, used in conjunction with each other, have emerged as important tools which give organizations the leading edge.

1.1.2 ERP systems – evolution

The focus of manufacturing systems in the 1960's was on Inventory control. Most of the software packages then (usually customized) were designed to handle inventory based on traditional inventory concepts. In the 1970's the focus shifted to MRP (Material Requirement Planning) systems which translated the Master Schedule built for the end items into time-phased net requirements for the sub-assemblies, components and raw materials planning and procurement.

In the 1980's the concept of MRP-II (Manufacturing Resources Planning) evolved which was an extension of MRP to shop floor and Distribution management activities. In the early 1990's, MRP-II was further extended to cover areas like Engineering, Finance, Human Resources, Projects Management etc i.e. the complete gamut of activities within any business enterprise. Hence, the term ERP (Enterprise Resource Planning) was coined.

In addition to system requirements, ERP addresses technology aspects like client/server distributed architecture, RDBMS, object oriented programming etc. ERP Systems - Bandwidth ERP solutions address broad areas within any business like Manufacturing, Distribution, Finance, Project Management. Service and

Maintenance, Transportation etc. A seamless integration is essential to provide visibility and consistency across the enterprise (Turban 2008)

An ERP system should be sufficiently versatile to support different manufacturing environments like make-to-stock, assemble-to-order and engineer-to-order. The customer order decoupling point (CODP) should be flexible enough to allow the co-existence of these manufacturing environments within the same system.

The system should be complete enough to support both Discrete as well as Process manufacturing scenario's. The efficiency of an enterprise depends on the quick flow of information across the complete supply chain i.e. from the customer to manufacturers to supplier. This places demands on the ERP system to have rich functionality across all areas like sales, accounts receivable, engineering, planning, Inventory Management, Production, Purchase, accounts payable, quality management, production, distribution planning and external transportation. EDI (Electronic Data Interchange) is an important tool in speeding up communications with trading partners.

More and more companies are becoming global and focusing on down-sizing and decentralizing their business. ABB and Northern Telecom are examples of companies which have business spread around the globe. For these companies to manage their business efficiently, ERP systems need to have extensive multi-site management capabilities. The complete financial accounting and management accounting requirements of the organization should be addressed. It is necessary to have centralized or de-centralized accounting functions with complete flexibility to consolidate corporate information.

For companies undertaking large scale and complex EPC projects, tools should be available for cost-effective project management, project planning and project control. After-sales service should be streamlined and managed efficiently. A strong EIS (Enterprise Information System) with extensive drill down capabilities

should be available for the top management to get a birds-eye view of the health of their organization and help them to analyze performance in key areas (Mehdi 2006).

1.1.3 Evaluation Criteria

Some important points to be kept in mind while evaluating ERP software include:

1) Functional fit with the Company's business processes
2) Degree of integration between the various components of the ERP system
3) Flexibility and scalability
4) Complexity; user friendliness
5) Quick implementation; shortened ROI period
6) Ability to support multi-site planning and control
7) Technology; client/server capabilities, database independence, security
8) Product roadmap clarity and availability of regular upgrades
9) Amount of customization required
10) Local support infrastructure
11) Availability of reference sites
12) Total cost of ownership (TCO), including cost of license, training, implementation, maintenance, customization and hardware requirements (Shankarnarayanan 2000).

1.1.4 ERP systems – implementation

The success of an ERP solution depends on how quick the benefits can be reaped from it. This necessitates rapid implementations which lead to shortened ROI periods. Traditional approach to implementation has been to carry out a Business Process Re-engineering exercise and define a ”TO-BE”business process model before the ERP system implementation for all high level processes within various departments in the company. This led to mismatches between the proposed model

and the ERP functionality, the consequence of which was customizations, extended implementation time frames, higher costs and loss of user confidence.

The BAAN approach is to conduct a concurrent Business Process Re-engineering during the ERP implementation and aim to shorten the total implementation time frame. Two scenario's can be distinguished:

1) Comprehensive Implementation Scenario: Here the focus is more on business improvement than on technical improvement during the implementation. This approach is suitable when: (a) Improvements in business processes are required. (b) Customizations are necessary (c) Different alternative strategies need to be evaluated (d) High level of integration with other systems are required and (e)Multiple Sites have to be implemented.

2) Compact Implementation Scenario: Here the focus is on technical migration during the implementation with enhanced business improvements coming at a later stage. This approach is suitable when; (a) Improvements in business processes are not required immediately (b) Change-minded organization with firm decision making process (c) Company is operating according to common business practices and (d) Implementation is predominantly at a single site (Brown 2003).

1.1.5 *ERP systems - the future*

The Internet represents the next major technology enabler which allows rapid supply chain management between multiple operations and trading partners (King 2005). Most ERP systems are enhancing their products to become “Internet Enabled” ' so that customers worldwide can have direct to the supplier's ERP system. ERP systems now include a “Internet Application Server” and the entire ERP system can be made available on the internet and accessed through browsers such as Internet Explorer. Examples of such ERP systems include Oracle and SAP, which are available both in traditional client – server models as well as web-enabled services.

ERP systems also have Workflow Management functionally which provides a mechanism to manage and control the flow of work by monitoring logistic aspects like workload, capacity, throughout times, work queue lengths and processing times.

Recognizing the need to go beyond ERP, major vendors of ERP such as Oracle and SAP are expanding their suite of products. Some of the modules / features introduced in recent years as part of the “Suite of Products” available from major vendors include “Environment Health & Safety” which deals with managing industrial safety and health and “Learning Management” which helps organizations ensure that their staff are adequately trained and equipped in a structured manner.

Additionally, ERP vendors have also branched into “Industry specific” or IS solutions which cater to the demands of specific industries. Examples include the SAP suite which includes additional components such as “IS Oil”, “IS Retail”, “IS Utilities”, etc. These specialized modules sit on top of the traditional ERP and provide differentiated functionality depending on the type of industry.

Additionally, ERP vendors also provide specific solutions for Small and Medium term businesses. Examples include the “SAP Business One” which is aimed at small businesses who cannot afford the larger and more expensive “full suite” of products.

ERP vendors are also providing their services as “cloud” services wherein, the hardware and infrastructure that is required to run the ERP applications are not required to be available within the company’s premises. The ERP vendors offer cloud solutions either on their own or through tie ups with large cloud service providers such as Google and Amazon. Another development is the availability of ERP systems and specific functions through mobile devices. This enables employees who are on the move (e.g. Sales staff) to update the system and make real-time reports available to the management of the organization (Yusuf 2004).

1.1.6 Functional Areas

Typical functional areas of ERP systems include the following modules:

1. Finance/Accounting
    - General Ledger
    - Accounts Payable
    - Accounts Receivable
    - Fixed Assets
    - Cash Management
    - Budgeting & Consolidation
2. Human Resources
    - Recruitment
    - Organization Management & Personnel
    - Performance Management
    - Learning Management (incl. Training)
    - Payroll
    - Benefits Management
    - Employee Self-Services
3. Production Planning
    - Sales & Operations planning
    - Demand Planning
    - Material Requirements Planning
    - Production Order Processing
    - Capacity Planning
    - Production Execution
    - Product Costing

4. Enterprise Asset Management
    - Asset (Equipment) Management
    - Maintenance Planning
    - Preventive and Condition based maintenance
    - Corrective and Breakdown maintenance
    - Maintenance Budgeting
    - Work / Job Order processing
    - Permit to Work
5. Supply Chain Management
    - Purchasing (Procure to Pay)
    - Tendering & Contracts
    - Inventory / Warehouse Management
    - Supplier Relationship Management

6. Sales & Distribution
    - Order Management (Order to Cash)
    - Marketing / Advertising
    - Outbound logistics
    - Transportation optimization
7. Project Management
    - Project Management
    - Project Resourcing
    - Project Costing
    - Project Billing & Contracts
8. Data services

    Various "Master Data Management" components which help companies manage their master data such as customer, supplier, material, equipment, etc in a very effective and efficient manner

9. Access control
    - User Access Control which enables segregate users into different groups / roles and ensure that only required access is provided to create / update / delete / view specific screens or transactions.
10. Analytics / Intelligence
    - Business Intelligence – Given the amount of data that is being generated by ERP systems, the availability of Business Intelligence systems to make sense by organizing and summarizing the data is key for companies. Hence, ERP system vendors also provide analytics and intelligence tools to help with additional reporting.

Additionally, there are several other products which may be a part of ERP systems or closely aligned to ERP systems such as the Document Management System (e.g. SAP DMS), Advanced Planning & Optimization, Environment Health & Safety (EHS), etc.

ERP vendors also offer several middleware solutions such as the Oracle Fusion Middleware, SAP XI / PI / XMII, etc.

ERP systems also offer standard adapters to connect to external systems such as GIS (Geographic Information System) and SCADA (Supervisory Control & Data Acquisition Systems) which are typical operational technology systems. ERP systems can now be interfaced to these systems using standard adapters to enable management to get real time operational data.

1.1.7 ERP expansion

ERP systems experienced rapid growth in the 1990s because the year 2000 and the Euro disrupted legacy systems. Many companies took this opportunity to replace such systems with ERP. This rapid growth in sales was followed by a slump in 1999 after these issues had been addressed.

ERP systems initially focused on automating *back office functions* that did not directly affect customers and the general public. *Front office functions* such as customer

relationship management (CRM) dealt directly with customers, or e–business systems such as e–commerce, e–government, e–telecom, and e–finance, or supplier relationship management (SRM) became integrated later, when the Internet simplified communicating with external parties (Chang 2005).

"ERP II" was coined in the early 2000s. It describes web–based software that allows both employees and partners (such as suppliers and customers) real–time access to the systems. "Enterprise application suite" is an alternate name such systems.

1.1.7.1 Components

- Transactional database
- Management portal/dashboard
- Business intelligence system
- Customizable reporting
- External access via technology such as web services
- Search
- Document management
- Messaging/chat/wiki
- Workflow management

1.1.7.2 Best practices

Best practices are incorporated into most ERP systems. This means that the software reflects the vendor's interpretation of the most effective way to perform each business process. Systems vary in the convenience with which the customer can modify these practices. Companies that implemented industry best practices reduced time–consuming project tasks such as configuration, documentation, testing and training. In addition, best practices reduced risk by 71% when compared to other software implementations.

The use of best practices eases compliance with requirements such as IFRS, Sarbanes-Oxley, or Basel II. They can also help comply with de facto industry standards, such as electronic funds transfer. This is because the procedure can be readily codified within the ERP software and replicated with confidence across multiple businesses who share that business requirement (Ferdows 1997).

1.1.7.3 Modularity

Most systems are modular to permit automating some functions but not others. Some common modules, such as finance and accounting are adopted by nearly all users; others such as human resource management are not. A service company for example likely has no need a manufacturing module. Other companies already have a system they believe to be adequate. Companies can pick and choose specific modules to be implemented depending on their business requirements (Kovacs 2003). They can also interface or integrate existing systems with ERP on the basis of availability of standard adapters, or through custom built point to point interfaces, or in the case of extremely large companies, Enterprise Service Bus (ESB).

1.1.7.4 Connectivity to plant floor / operational systems

ERP systems connect to real–time data and transaction data in a variety of ways. These systems are typically conChartd by systems integrators, who bring unique knowledge on process, equipment, and vendor solutions.

Direct integration— ERP systems provide communications to plant floor equipment as part of their product offering. This requires the vendors to offer specific support for the plant floor equipment that their customers operate. ERP vendors must be expert in their own products, and connectivity to other vendor products, including competitors.

Database integration—ERP systems connect to plant floor data sources through staging tables in a database. Plant floor systems deposit the necessary

information into the database. The ERP system reads the information in the table. The benefit of staging is that ERP vendors do not need to master the complexities of equipment integration. Connectivity becomes the responsibility of the systems integrator.

Enterprise appliance transaction modules (EATM) — These devices communicate directly with plant floor equipment and with the ERP system via methods supported by the ERP system. EATM can employ a staging table, Web Services, or system–specific program interfaces (APIs). The benefit of an EATM is that it offers an off–the–shelf solution.

Custom–integration solutions— Many system integrators offer custom solutions. These systems tend to have the highest level of initial integration cost, and can have a higher long term maintenance and reliability costs. Long term costs can be minimized through careful system testing and thorough documentation. Custom–integrated solutions typically run on workstation or server class computers.

Standard protocols—Communications drivers are available for plant floor equipment and separate products have the ability to log data to staging tables. Standards exist within the industry to support interoperability between software products, the most widely known being OPC

1.1.8 Implementation ERP

ERP's scope usually implies significant changes to staff work practices. Generally, three types of services are available to help implement such changes—consulting, customization, and support. Implementation time depends on business size, number of modules, customization, the scope of process changes, and the readiness of the customer to take ownership for the project. Modular ERP systems and can be implemented in stages. The typical project for a large enterprise consumes about 14 months and requires around 150 consultants. Small projects can require months;

multinational and other large implementations can take years] Customization can substantially increase implementation times (Gill 2011).

Implementing ERP software can overwhelm inexperienced technicians. As a result, hiring professionally trained consultants to implement these systems is common. Consulting firms typically provide three areas of professional services: consulting, customization, and support. The client organization can also employ independent program management, business analysis, change management, and UAT specialists to ensure their business requirements remain a priority during implementation.

1.1.8.1 Process preparation

Implementing ERP typically requires changing existing business processes. Poor understanding of needed process changes prior to starting implementation is a main reason for project failure. It is therefore crucial that organizations thoroughly analyze business processes before implementation. This analysis can identify opportunities for process modernization. It also enables an assessment of the alignment of current processes with those provided by the ERP system. Research indicates that the risk of business process mismatch is decreased by:

- linking current processes to the organization's strategy;
- analyzing the effectiveness of each process;
- understanding existing automated solutions.

ERP implementation is considerably more difficult (and politically charged) in decentralized organizations, because they often have different processes, business rules, data semantics, authorization hierarchies and decision centers. This may require migrating some business units before others, delaying implementation to work through the necessary changes for each unit, possibly reducing integration (e.g. linking via Master data management) or customizing the system to meet specific needs.

A potential disadvantage is that adopting "standard" processes can lead to a loss of competitive advantage. While this has happened, losses in one area often offset by gains in other areas, increasing overall competitive advantage (Nigel 2010).

1.1.8.2 Configuration

Configuring an ERP system is largely a matter of balancing the way the customer wants the system to work with the way it was designed to work. ERP systems typically build many changeable parameters that modify system operation. For example, an organization can select the type of inventory accounting—FIFO or LIFO—to employ, whether to recognize revenue by geographical unit, product line, or distribution channel and whether to pay for shipping costs when a customer returns a purchase.

1.1.8.3 Customization

When the system doesn't offer a particular feature, the customer can rewrite part of the code, or interface to an existing system. Both options add time and cost to the implementation process and can dilute system benefits. Customization inhibits seamless communication between suppliers and customers who use the same ERP system un customized.

Key differences between customization and configuration include:

- Customization is always optional, whereas the software must always be conChartd before use (e.g., setting up cost/profit center structures, organizational trees, purchase approval rules, etc.)
- The software was designed to handle various configurations, and behaves predictably any allowed configuration.
- The effect of configuration changes on system behavior and performance is predictable and is the responsibility of the ERP vendor. The effect of customization is less predictable, is the customer's responsibility and increases testing activities.

- Configuration changes survive upgrades to new software versions. Some customizations (e.g. code that uses pre–defined "hooks" that are called before/after displaying data screens) survive upgrades, though they require retesting. Other customizations (e.g. those involving changes to fundamental data structures) are overwritten during upgrades and must be reimplemented.

Customization can be expensive and complicated, and can delay implementation. Nevertheless, customization offers the potential to obtain competitive advantage vis a vis companies using only standard features (Sheilds 2001).

1.1.8.4 Extensions

ERP systems can be extended with third–party software. ERP vendors typically provide access to data and functionality through published interfaces. Extensions offer features such as:

- archiving, reporting and republishing;
- capturing transactional data, e.g. using scanners, tills or RFID
- Access to specialized data/capabilities, such as syndicated marketing data and associated trend analytics (Ramaswamy 2007).

1.1.8.5 Data migration

Data migration is the process of moving/copying and restructuring data from an existing system to the ERP system. Migration is critical to implementation success and requires significant planning. Unfortunately, since migration is one of the final activities before the production phase, it often receives insufficient attention. The following steps can structure migration planning:

- Identify the data to be migrated
- Determine migration timing
- Generate the data templates
- Freeze the toolset

- Decide on migration-related setups
- Define data archiving policies and procedures (Walsh 2008)

1.1.8.6 Consultants

Many organizations do not have sufficient internal skills to implement ERP. Typically, an outside consulting team is responsible for the ERP implementation including selecting the vendor, planning, training, configuring/customizing, testing, implementation, delivery. Examples of other services include writing process triggers and custom workflows; specialist advice to improve how the ERP is used in the business; system optimization; custom reports; complex data extracts or implementing Business Intelligence.

For mid–sized companies, the cost of the implementation typically ranges from 1–2x the software's list price. Large companies, and especially those with multiple sites or countries, may spend 3–5x.

Unlike most single–purpose applications, ERP packages typically include source code and a vendor–supported development environment for customizing and extending the delivered code.

1.1.9 Comparison to special–purpose applications

1.1.9.1 Advantages

The fundamental advantage of ERP is that integrating the myriad processes by which businesses operate saves time and expense. Decisions can be quicker and with fewer errors. Data becomes visible across the organization. Tasks that benefit from this integration include:

- ❖ Sales forecasting, which allows inventory optimization
- ❖ Order tracking, from acceptance through fulfillment
- ❖ Revenue tracking, from invoice through cash receipt

- Matching purchase orders (what was ordered), inventory receipts (what arrived), and costing (what the vendor invoiced)

ERP systems centralize business data. Benefits of this include:

- Eliminates synchronizing changes between multiple systems—consolidation of finance, marketing and sales, human resource, and manufacturing applications
- Enables standard product naming/coding.
- Provides comprehensive enterprise view (no "islands of information"). Makes real–time information available to management anywhere, anytime to make proper decisions.
- Protects sensitive data by consolidating multiple security systems into a single structure (O'Brien 2011).

1.1.9.2 Disadvantages

- Customization is problematic.
- Re–engineering business processes to fit the ERP system may damage competitiveness and/or divert focus from other critical activities
- ERP can cost more than less integrated and/or less comprehensive solutions.
- High switching costs increase vendor negotiating power vis a vis support, maintenance and upgrade expenses.
- Overcoming resistance to sharing sensitive information between departments can divert management attention.
- Integration of truly independent businesses can create unnecessary dependencies.
- Extensive training requirements take resources from daily operations.

1.2 INDUSTRY PROFILE

1.2.1 Introduction

Manufacturing has emerged as one of the high growth sectors in India. Prime Minister of India, Mr Narendra Modi, launched the 'Make in India' program to place India on the world map as a manufacturing hub and give global recognition to the Indian economy. Government aims to create 100 million new jobs in the sector by 2022.

1.2.2 Market Size

- The Gross Value Added (GVA) at basic current prices from the manufacturing sector in India grew at a CAGR of 5% during FY16 and FY20 as per the annual national income published by Government of India. The sector's GVA at current prices was estimated at US$ 397.14 billion in FY20PE.
- Business conditions in the Indian manufacturing sector continue to remain positive. The manufacturing component of IIP stood at 129.8 during FY20. Strong growth was recorded in the production of basic metals (10.8%), intermediate goods (8.8%), food products (2.7%) and tobacco products (2.9%). India's Index of eight core industries stood at 131.9 in FY20.
- Merchandise export decreased 4.78% y-o-y to reach US$ 314.31 billion in FY20.

1.2.3 Investments

With the help of Make in India drive, India is on a path of becoming the hub for hi-tech manufacturing as global giants such as GE, Siemens, HTC, Toshiba, and Boeing have either set up or are in process of setting up manufacturing plants in India, attracted by India's market of more than a billion consumers and an increasing purchasing power.

According to the United Nations Conference on Trade and Development (UNCTAD), India ranked among the top 10 recipients of Foreign Direct Investment (FDI) in South Asia in 2019, attracting US$ 49 billion—a 16% increase from the previous year.

- Cumulative Foreign Direct Investment (FDI) in India's manufacturing sector reached US$ 88.45 billion during April 2000 March 2020.

- India has become one of the most attractive destinations for investment in the manufacturing sector. Some of the major investments and developments in this sector in the recent past are:
- In May 2020, Sterling and Wilson Solar Limited (SWSL) bagged an Engineering Procurement Construction (EPC) contract in Australia for Rs 2,600 crore (US$ 368.85 million).
- In March 2020, Oricon Enterprises entered into a joint venture agreement with Italy-headquartered Tecnocap Group to set up a new company, Tecnocap Oriental, for manufacturing lug caps.
- In September 2019, Mumbai got its first metro coach manufactured by state-run Bharat Earth Movers (BEML) under the 'Make-in-India' initiative.
- In October 2019, Berger Paints India Ltd, a Kolkata-based company, acquired 95.53% stake of STP Ltd (STPL), which is primarily into waterproofing and protective coatings.
- In September 2019, OnePlus launched its smart TVs in the Indian market.
- In August 2019, Vivo planned to invest around Rs 3,500 crore (US$ 480 million) in India into capacity expansion.
- Capacity utilisation in India’s manufacturing sector stood at 69.1% in the second quarter of 2019-20.

1.2.4 Government Initiatives

- The Government of India has taken several initiatives to promote a healthy environment for the growth of manufacturing sector in the country. Some of the notable initiatives and developments are:
- In March 2020, the government approved the Production Incentive Scheme (PLI) for Large-scale Electronics Manufacturing. The scheme proposes production-linked incentive to boost domestic manufacturing and attract large investments in mobile phone manufacturing and specified electronic components including Assembly, Testing, Marking and Packaging (ATMP) units.

- In May 2020, Government increased FDI in Defence manufacturing under the automatic route from 49% to 74%.
- In March 2020, the Union Cabinet approved financial assistance to the Modified Electronics Manufacturing Clusters (EMC2.0) Scheme for development of world class infrastructure along with common facilities and amenities through Electronics Manufacturing Clusters (EMCs).
- As per the Ministry of Statistics and Programme Implementation (MOSPI) report on Payroll Reporting in India, number of new subscribers* under Employees' Provident Fund Scheme reached 4,01,949 in March 2020.
- Under the Pradhan Mantri Kaushal Kendras, 73 lakh people were trained during 2016-20 while 723 Pradhan Mantri Kaushal Kendras were established till Jan 2020.
- As of February 2020, there were 14,602 Industrial Training Institutes (ITI) present in India. (Accessed on March 06, 2020).
- In August 2019, the Government permitted 100% FDI in contract manufacturing through the automatic route.
- Under Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 1.0, 19.85 lakh candidates were trained, out of which 2.62 lakh (13.23%) got placements. Under PMKVY 2.0 (2016-2020), which was launched in October 2016, about 52.12 lakh candidates received training and 12.60 lakh (24.18%) got jobs by June 2019.
- In February 2019, the Union Cabinet passed National Policy on Electronics (NPE), envisaged to create a US$ 400 billion electronics manufacturing industry in the country by 2025. 32% growth rate has been targeted globally in next five years.
- Under the Make in India initiative, Government aims to increase the share of the manufacturing sector to country's GDP to 25% by 2025.
- Under the Mid-Term Review of Foreign Trade Policy (2015-20), the Government of India increased export incentives available to labour intensive MSME sectors

by 2%. In April 2020, Government extended FTP for one more year, up to March 31, 2021.

1.2.5 Road Ahead

- India is an attractive hub for foreign investments in the manufacturing sector. Several mobile phone, luxury and automobile brands, among others, have set up or are looking to establish their manufacturing bases in the country.
- The manufacturing sector of India has the potential to reach US$ 1 trillion by 2025. The implementation of the Goods and Services Tax (GST) will make India a common market with a GDP of US$ 2.5 trillion along with a population of 1.32 billion people, which will be a big draw for investors.
- With impetus on developing industrial corridors and smart cities, the Government aims to ensure holistic development of the nation. The corridors would further assist in integrating, monitoring and developing a conducive environment for the industrial development and will promote advance practices in manufacturing.

1.3 NEED FOR THE STUDY

- Enterprise Resource Planning (ERP) is a business management software solution that enables organizations to use one system to manage business processes.
- ERP is a accounting and operations oriented and features one database as a master source of enterprise information. ERP for manufacturing is used to identify and plan the resource needs of the entire enterprise.
- ERP provides one user interface for the entire organization to manage.
    - Financials
    - Product planning
    - Materials and parts purchasing
    - Inventory management
    - Distribution and logistics
    - Production scheduling
    - Manufacturing processes
    - Capacity utilization
    - Order management and tracking

1.4 SCOPE OF THE STUDY

- Enterprise Resource Planning (ERP) is an integrated suite of modules that are comprehensively devised to digitally sequence and streamline the business functions that could be categorized under the following:

    - Financial management
    - Supply chain management
    - Panning & manufacturing
    - Event management
    - Project management
    - Order control
    - Supplier Scheduling

1.5 OBJECTIVES OF THE STUDY

1.5.1 Primary Objective

- To study on ERP software related to manufacturing industry.

1.5.2 Secondary Objective

- To study on importance of ERP implementation in manufacturing industry.
- To analyze about the employee awareness and opinion on ERP system.
- To study on impact, various advantages and benefits of ERP system.
- To measure the satisfaction level of employees on benefits of ERP system.

1.6 LIMITATIONS OF THE STUDY

- A substantial amount of companies attempt to save money through not providing enough expenses for enterprise resource planning training for employees.
- Enterprise Resource Planning (ERP) is a costly software alone, and setting up the software as well can be extremely costly as well.
- The customization of ERP setup is limited and it may engross the changing of the entirety of the ERP software foundation.
- Installation and training time may disturb the functionality of the organization and could impose a huge risk of loss of potential business in that particular period.
- Interconnectivity among various departments within a manufacturing operation is both beneficial and disadvantageous.

CHAPTER – 2

REVIEW OF LITERATURE

Parr A, Willcocks L, Sykes R (2000), Enterprise resource planning (ERP) systems are software packages composed of several modules, such as human resources, sales, finance and production, providing cross organization integration of information through embedded business processes. These software packages can be customized to cater for the specific needs of an organization. During the 1990s, ERP systems became the de facto standard for replacement of legacy systems in large and particularly multinational companies Regarding the significant impact of ERP systems in a company, Chen et al. (2006) state that, “the success of a company increasingly depends on timely information (internal and external) being available to the right person at the right time for crucial managerial decision-making,”

Gibson, (1999), ERP system integrates all business process and functions enabling organizations to improve efficiency. Davenport (1998) states that, “the business world’s embrace of enterprise systems may in fact be the most important development in the corporate use of information technology in the 1990s.” However, ERP’s contributions to organizations strategic value creation efforts depend on many critical factors including its right implementation and the effective management of its operational performance during its lifecycle.

Jacobs, Bendoly (2003), In this research paper there is a considerable volume of research focused on the specific issues of ERP; however, there are no consensus on the definition and the issues related to ERP. According to, “Enterprise resource planning (ERP) has come to mean many things over last several decades. Divergent applications by practitioners and academics, as well as by researchers in alternative fields of studies, has allowed for considerable proliferation on the topic and for a considerable confusion regarding the meaning of the term.”

Osi Bryson K, Dong L, Ngwenyama O, (2008), this research additionally, successful implementation and effective management of ERP’s operational performance during its life cycle is still a major problem in today’s organizations.

Gable and Rosemann (1999), A survey of the literature on ERP and its implementation, operational performance, and other issues related to its lifecycle. This study provides a survey of literature on ERP published in the major information systems, related journals, and conference proceedings during the period 1997–2010. It categorizes them through an ERP life cyclebased framework that is structured in phases. Originally, this bibliography started as an extension of the one developed by, which focused on ERP and measurements of ERP.

Akkermans HA, Bogerd P, Yucesan E, (2003), The term Enterprise Resource Planning is originally coined in 1990 by The Gartner Group to describe the next generation of MRP II software. Historically, ERP evolved from material requirement planning (MRP) and manufacturing resource planning MRP II systems of the 1970s and the 1980s, respectively. MRP and MRP II systems were designed to systemically link different aspects of process information within specific business context such as manufacturing. Within the literature, different authors have defined ERP in a different way.

Akkermans (2003), In this study states that ERP can be defined from different perspectives such as functional, technical, or from business perspective that provides strategic value encompassing the entire organizations.

Bernroider E, Koch S, (1999), The most common reason that companies abandon multimillion dollar ERP projects is that they discover that the system does not support one of their important business processes, or they see no linkages between the benefits of an ERP system and their ways of doing business. At that point, they may make two decisions: They can customize the system to fit the process and accommodate it; this may introduce excruciating bugs into the system. Because the customizations may need to torn apart and rewrite the system to fit it with the business process.

Boersma K, Kingma S, (2005), They can change the business process to accommodate the system, which may mean deep changes in long-established ways of doing business and reorganize important people's roles and responsibilities. However, any redesign and changes of a business process that the system planned to support should not be carried out with the intent of supporting the planned system.

Zhu K, Kraemer KL, (2005), ERP offers a tremendous value to e-commerce firms' performance. However, vendors were not prepared for the onslaught of e-commerce. ERP is a complex system and not intended for public consumption. It assumes that the only people handling order information will be trained employees and are comfortable with the technical complexities of the system. However, customers and suppliers are demanding access to the same information such as order status, inventory levels and invoice reconciliation except if they want to get all this information simply, without all the ERP software jargon, through the firm's website.

Radut and Codreanu (2012), It is the most important part of adopting an ERP system is the selection part and the selection process should be specific to organisation as it takes into account the requirements of the organisation and should be an analytical method based on criteria. The most important of which are functionality, technology and expertise, flexibility and application scalability, costs, implementation and ease of use. Their offering is a simple sequential qualitative model with selection criteria/characteristics composed of six attributes, namely functionality, reliability, efficiency, usability, maintainability, and portability.

Johansson (2011), The primary focus of the relationship between factors influencing selection of implementation approach and companies ability to stay within budget when implementing ERPs. The main findings are that the number of implemented modules influences selection of an implementation approach, companies with information strategies are more likely to stay within budget regarding ERP systems implementation.

Garg and Khurana (2013), presented the ERP product selection criteria for Indian SMEs. The finding of this research will help the marketing and sales team of ERP

product companies to improve upon the key points and also enable end users to make informed decisions in selecting the ERP package for the organisation.

Ratkevicius (2012), In this research study has different classifications of the fundamental criteria for the ERP system selection process, and defines two main groups – software-related, and implementation-related. The significance of ERP system functionality as the principal software-related ERP selection criterion is emphasised.

Juell-Skielse (2012), presented a novel method for ERP selection which better utilises the strengths of service oriented ERP named agile method for ERP selection (AMES) as conventional on premise installations of ERP are now rapidly being replaced by ERP as service. AMES is designed to shorten lead time for selection, support identification of essential system requirements, increase learning during the selection process and increase control over the subsequent ERP. AMES, has three phases: envision iterate and decide.

Hurbean (2009), This research study has published the objective oriented approach to ERP vendor selection process in which they emphasised that the selection process should take into account their ability to help transform business processes in order to achieve the customer's objectives.

Saroukhani (2008), presented in the review done of the literature published on the methods of the ERP selection and also done some comparison between the methods. The researchers have investigated various model of the ERP acquisition process, evaluating tools, performance prediction system, neural networks and supply chain management (SCM), etc.

Pacheco-Comer and Gonzalez-Castolo (2012), Their study proposed a technique to identify additional modules to be included in the ERP package. Their study gives more scope for research in application of computational intelligence techniques to model the ERP selection process using evolutionary computation, multi agent systems and Petri Nets etc.

Rouyendegh and Erkan (2011), In this research has comprehensive framework for selecting a suitable ERP system by using AHP which can systematically construct the

objectives of an ERP selection to support the business goals and strategies of an enterprise. In the case study they could realise their selection by using parameters of total costs, implementation time, functionality, user-friendliness and reliability.

Ozturkoglu and Esendmir (2014), The framework addresses only the software-related selection, criteria and not vendor-related. More research is required to link the business strategy and IT strategy with the framework proposed. proposed a model for selecting the ERP software selection in which they combined grey relational analysis (GRA) with an intuitionistic fuzzy set multi-criteria method (IFS). In the case study, they first obtained the weights with using IFS method and then rank and select the alternatives with using GRA..

Kazancoglu and Burmaoglu (2013), There is more scope to widen the scope and take into consideration all aspects and develop a comprehensive frame work. presented the TODIM method, which allows the usage of both qualitative and quantitative data through a case study which involves ERP software selection process of a steel forming firm.

Cebeci (2009), In this study approach to select a suitable ERP system for an industry having challenges of variant structure of products, production variety and unqualified human resources and proposed to match the ERP package objectives with the business objectives and also provided an analytical tool to select the most suitable ERP software. In this study, a fuzzy extension of the multi-criteria decision-making technique analytic hierarchy process (AHP), was used to compare these ERP system solutions.

Al-Shamlan and Al-Mudimigh (2011), discussed that the top management usually faces an unexpected attitude from potential users during implementing an ERP system. As their resistance may cause failure of project top management should deal with this problem using effective change management strategies and processes. They also provided a very significant and very explicit contribution towards the change management factors for ERP implementation.

Zakari and Ahmad (2012), in the paper identify two major areas of concern regarding the management of knowledge in their study: managing tacit knowledge, and issues

regarding the process-based nature of organisational knowledge viewed through the lens of organisational memory. The competitive advantage of organisation arises from its capabilities in internalising and integrating the adopted processes with the existing knowledge paradigms and harmonising the new system and the organisational culture towards getting the most out of the implementation effort.

Sedera and Gable (2010), presented the research model, illustrating the hypothesized relationship between knowledge management (KM)-competence and enterprise system (ES-success) and argued that the higher the organisation's level of ES-related KM-competence, the higher will be the level of success of the enterprise system. Consistent with the literature reviewed they argue that the four knowledge management phases (i.e. creation, transfer, retention, and application) are distinct yet interrelated, with competence in each phase contributing to overall KM-competence in the organisation.

Oztemel (2011), proposed effective automated knowledge management systems including agent-based approaches, such as strategic enterprise resource management (SERM) together with active knowledge management models such as enterprise knowledge management model (EKMM) as well respective supporting systems in order to be intelligent enough in own operations.

CHAPTER – 3

RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN

Descriptive research design is used for the study. It includes questionnaire for collection of data through field study, collecting data from target respondents, processing and analyzing the data and arriving at conclusions.

It includes sampling design, sample location, sampling frame, sampling unit and sample size. The study is about ERP software related to manufacturing industry. The population of the study will be employees of various manufacturing industry in Chennai having knowledge about ERP software.

3.2 SAMPLING TECHNIQUE

Sampling is the process of selecting the sufficient number of elements from the employees. This study adopted the technique of random sampling of convenience sampling method using MS Excel. Random sampling is a way of selecting a sample of observation from a population in order to make inferences about the population.

3.3 SOURCE OF DATA

This study includes primary and secondary data collection methods. Primary data for the study is quantitative in nature and secondary data for the study is qualitative in nature. Primary data collection is through the circulation of questionnaire to employees working in various manufacturing industries in Chennai. Secondary data for the study is collected from journals, books and websites.

3.4 STRUCTURE OF QUESTIONNAIRE

The structure of questionnaire consists of two parts. Part A consists profile of respondents and Part B consists of questions related to objectives.

3.5 SAMPLE SIZE

Sample size means the number of sampling units selected from the employees for the study. It helps to achieve the objective of research. The sample size taken for the study is 120.

3.6 PERIOD OF STUDY

The study period is from January 2021 to March 2021.

3.7 ANALYTICAL TOOLS USED

3.7.1 Percentage analysis

$$\text{Percentage} = \frac{Number\ of\ respondents}{Total\ number\ of\ respondents}\ x\ 100$$

3.7.2 Weighted average method

The term weight stands for the relative importance of the different items. The formula for computing weighted average is,

$$\text{Weighted Average} = \sum_{i=1}^{n} \frac{W_i X_i}{N}$$

X_i: Variable value W_i: Weight attached to the variable value N: Total no of response

3.7.3 Chi-Square Test

The real world data of a system follow some distribution depending on the characteristic of the system. After collecting data from the system of interest, the essential step is to fit the data to the nearest distribution, which represents the data, more meaning fully for future analysis. Such fitting of data to the nearest distribution is done using the goodness of fit test. The goodness of fit of a given set of data is performed using chi-square test. The combination of hypothesis for this situation is

- H_0: The given data follow an assumed distribution
- H_1: The given data do not follow an assumed distribution

The Observed Chi-Square statistics,

$$\chi^2 = \sum_{i=1}^{n} \frac{(Oi - Ei)^2}{Ei}$$

Where,

Oi - the Observed frequency of the i^{th} value of the random variable

Ei - the Expected frequency of the i^{th} value of the random variable

n - The number of values of the random variable.

Reject or accept the hypothesis based on the calculated and tabulated values

CHAPTER – 4

DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

Table 4.1.1 – Table Showing Respondents Gender

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Male	105	87.5%
2.	Female	15	12.5%
	Total	**120**	**100**

Source: Primary data

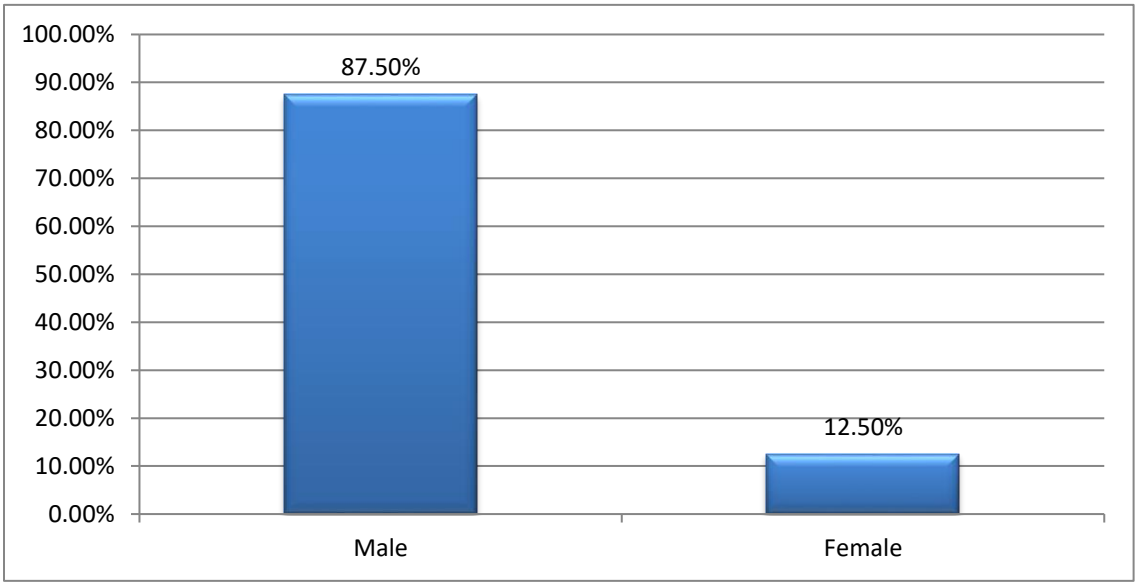

Chart 4.1.1 – Chart Showing Respondents Gender

INTERPRETATION

From the above Chart 4.1.1, it is found that 87.5% of the respondents are male and 12.5% of the respondents are female.

INFERENCE

Majority of 87.5% respondents are male.

Table 4.1.2 – Table Showing Respondents Age

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Below 25	57	47.50%
2.	25 – 30	19	15.83%
3.	30 – 35	30	25.0%
4.	Above 35	14	11.67%
	Total	**120**	**100**

Source: Primary data

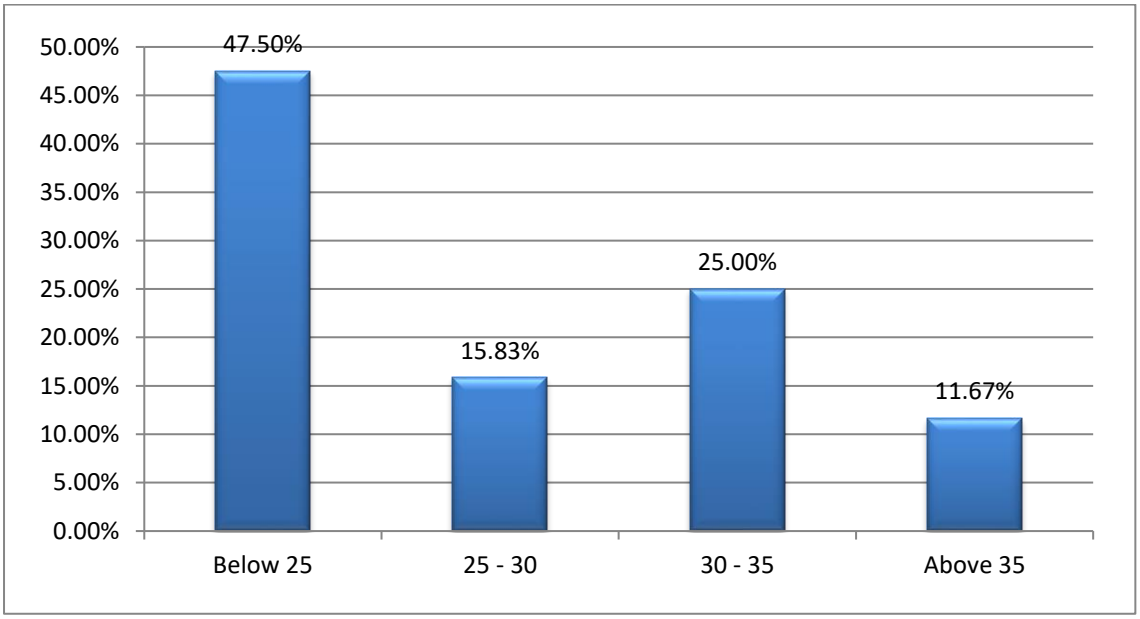

Chart 4.1.2 – Chart Showing Respondents Age

INTERPRETATION

From the above Chart 4.1.2, it is found that 47.5% of the respondents are aged below 25, 15.83% of the respondents are aged between 25 – 30, 25% of the respondents are aged between 30 – 35 and 11.67% of the respondents are aged above 35.

INFERENCE

Majority of 47.5% respondents are aged below 25.

Table 4.1.3 – Table Showing Respondents Department

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Production	26	21.67%
2.	Sales	26	21.67%
3.	HR	21	17.5%
4.	Finance	33	27.5%
5.	R&D	14	11.67%
	Total	**120**	**100**

Source: Primary data

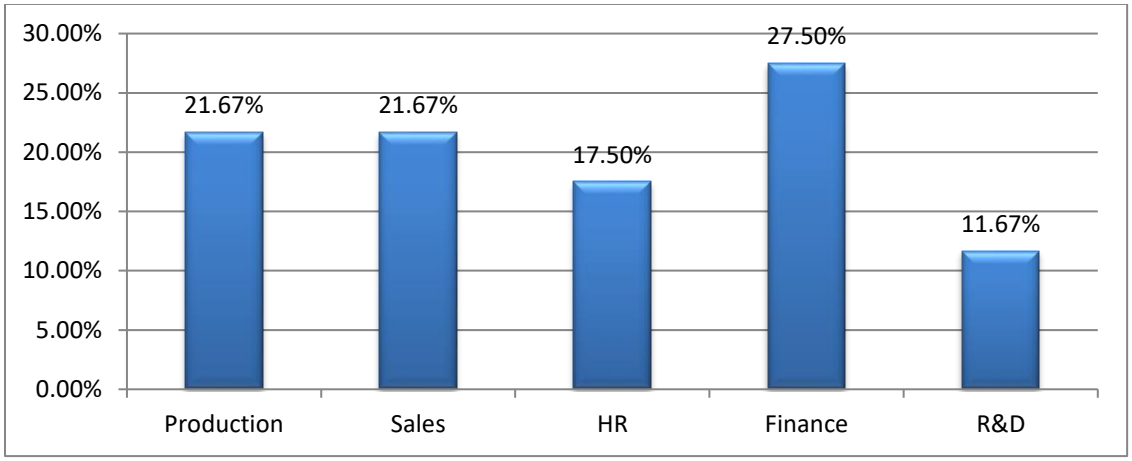

Chart 4.1.3 – Chart Showing Respondents Department

INTERPRETATION

From the above Chart 4.1.3, it is found that 21.67% of the respondents are working in production department, 21.67% of the respondents are working in sales department, 17.5% of the respondents are working in HR department, 27.5% of the respondents are working in finance department and 11.67% of the respondents are working in R&D department.

INFERENCE

Majority of respondents are working in production and sales department.

Table 4.1.4 – Table Showing Respondents Work Experience

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Less than 2 years	56	46.67%
2.	2 - 3 years	24	20%
3.	3 - 4 years	20	16.67%
4.	Greater than 4 years	20	16.67%
	Total	**120**	**100**

Source: Primary data

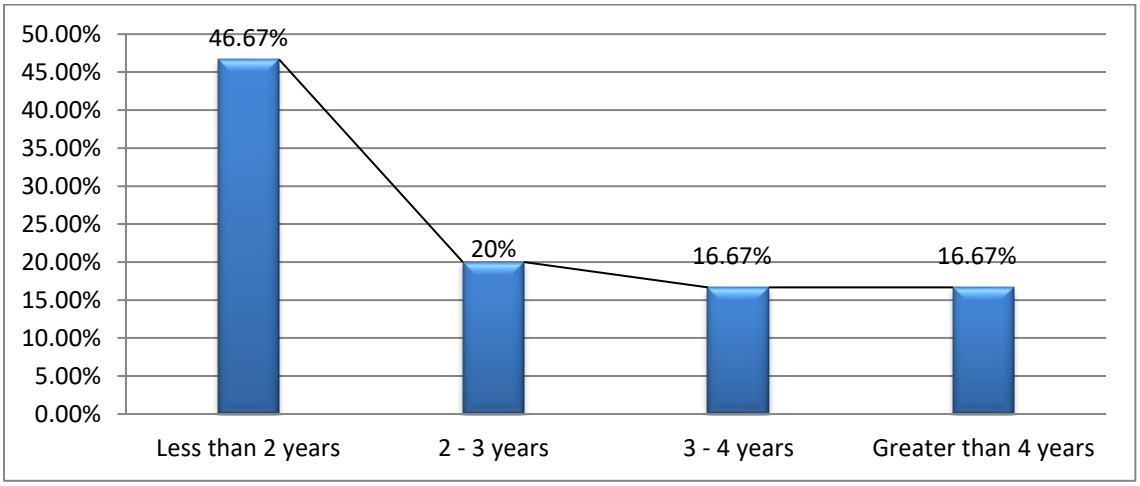

Chart 4.1.4 – Chart Showing Respondents Work Experience

INTERPRETATION

From the above Chart 4.1.4, it is found that 46.7% of the respondents have working experience less than 2 years, 20% of the respondents have working experience 2 - 3 years, 16.7% of the respondents have working experience 3 - 4 years and 16.7% of the respondents have working experience greater than 4 years.

INFERENCE

Majority of respondents have working experience less than 2 years.

Table 4.1.5 – Table Showing Adequate skill and experience to work with ERP software

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	59	49.17%
2.	Agree	43	35.83%
3.	Neither Agree nor Disagree	10	8.33%
4.	Disagree	7	5.83%
5.	Strongly Disagree	1	.83%
	Total	**120**	**100**

Source: Primary data

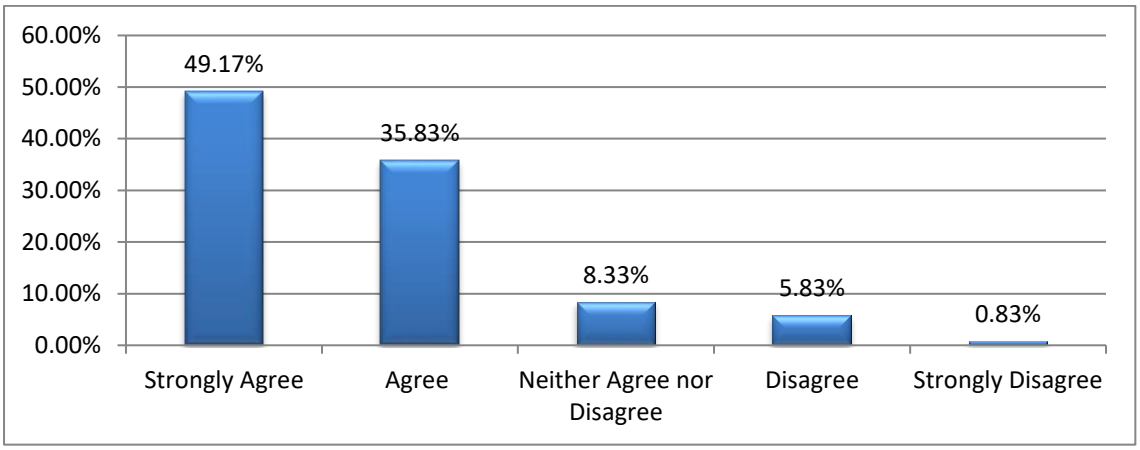

Chart 4.1.5 – Chart Showing Adequate skill and experience to work with ERP software

INTERPRETATION

Above Chart 4.1.5 shows response on adequate skill and experience to work with ERP software**,** 49.17% of the respondents are strongly agree, 35.83% of the respondents are agree, 8.33% of the respondents are neither agree nor disagree, 5.83% of the respondents are disagree and 0.83% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are strongly Agree.

Table 4.1.6 – Table Showing Compare to earlier ERP Systems, current ERP system is better

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	26	21.67%
2.	Agree	61	50.83%
3.	Neither Agree nor Disagree	24	20%
4.	Disagree	7	5.83%
5.	Strongly Disagree	2	1.67%
	Total	**120**	**100**

Source: Primary data

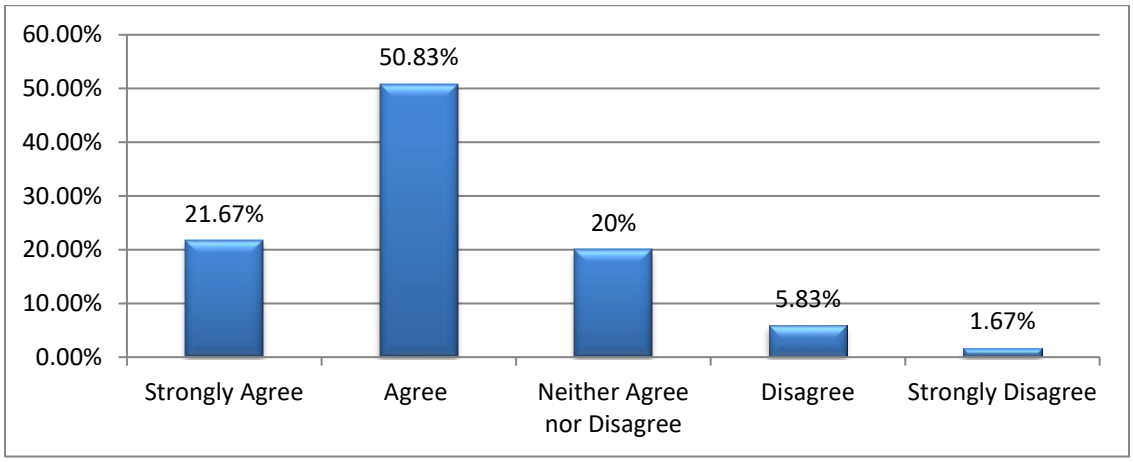

Chart 4.1.6 – Chart Showing Compare to earlier ERP Systems, current ERP system is better.

INTERPRETATION

Above Chart 4.1.6 shows response on compare to earlier ERP Systems, current ERP system is better, 21.67% of the respondents are strongly agree, 50.83% of the respondents are agree, 20% of the respondents are neither agree nor disagree, 5.83% of the respondents are disagree and 1.67% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are agree.

Table 4.1.7 – Table Showing Management calculates the return on investment (ROI) from an ERP system before it can be implemented

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	23	19.17%
2.	Agree	30	25%
3.	Neither Agree nor Disagree	40	33.33%
4.	Disagree	24	20%
5.	Strongly Disagree	3	2.5%
	Total	**120**	**100**

Source: Primary data

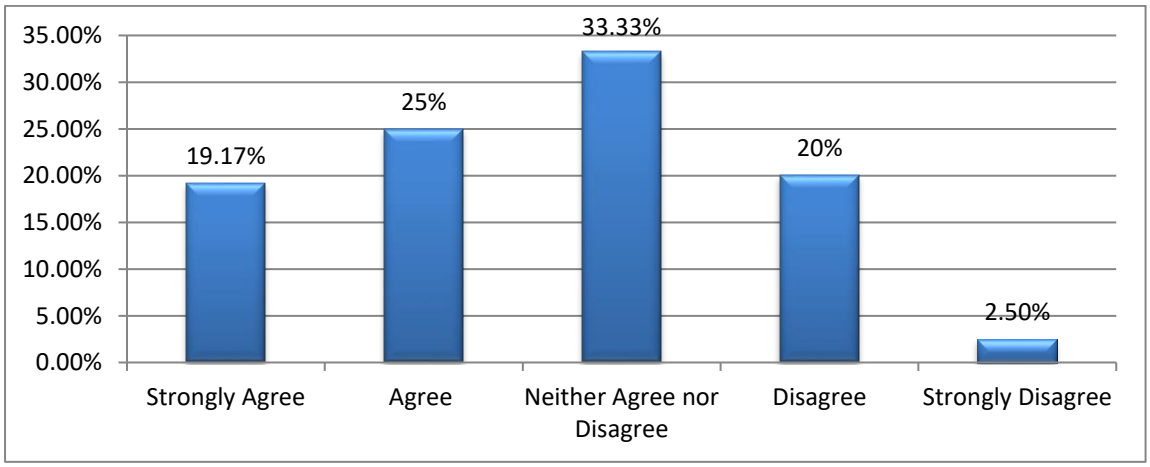

Chart 4.1.7 – Chart Showing Management calculates the return on investment (ROI) from an ERP system before it can be implemented

INTERPRETATION

Above Chart 4.1.7 shows response on management calculates the return on investment (ROI) from an ERP system before it can be implemented, 19.17% of the respondents are strongly agree, 25% of the respondents are agree, 33.33% of the respondents are neither agree nor disagree, 20% of the respondents are disagree and 2.5% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are neither agree nor disagree

Table 4.1.8 – Table Showing Management provide special training program about ERP

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	17	14.17%
2.	Agree	61	50.83%
3.	Neither Agree nor Disagree	18	15%
4.	Disagree	14	11.67%
5.	Strongly Disagree	10	8.33%
	Total	**120**	**100**

Source: Primary data

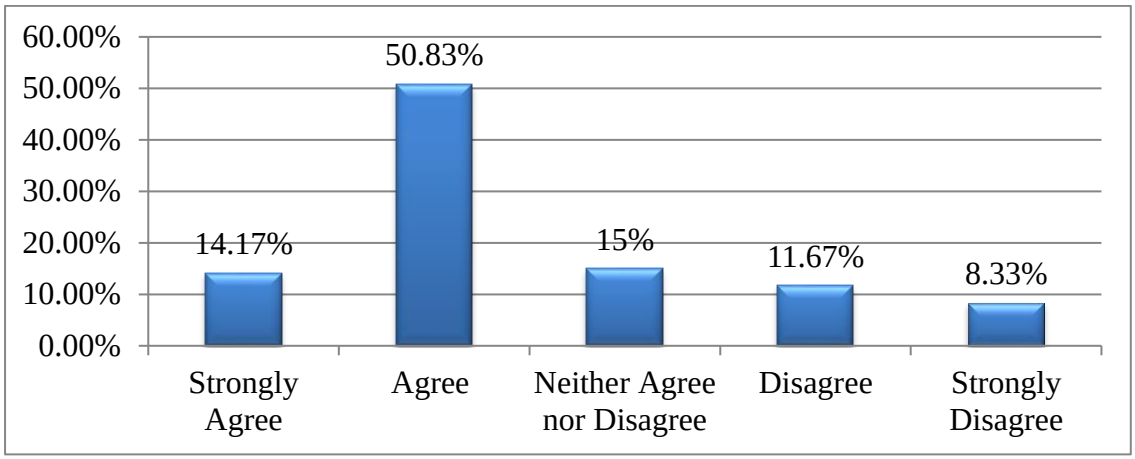

Chart 4.1.8 – Chart Showing Management provide special training program about ERP

INTERPRETATION

Above Chart 4.1.8 shows response on management provide special training program about ERP, 14.17% of the respondents are strongly agree, 50.83% of the respondents are agree, 15% of the respondents are neither agree nor disagree, 11.67% of the respondents are disagree and 8.33% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are agree.

Table 4.1.9 – Table Showing know about the success and failure of ERP system

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	30	25%
2.	Agree	45	37.5%
3.	Neither Agree nor Disagree	25	20.83%
4.	Disagree	13	10.83%
5.	Strongly Disagree	7	5.83%
	Total	**120**	**100**

Source: Primary data

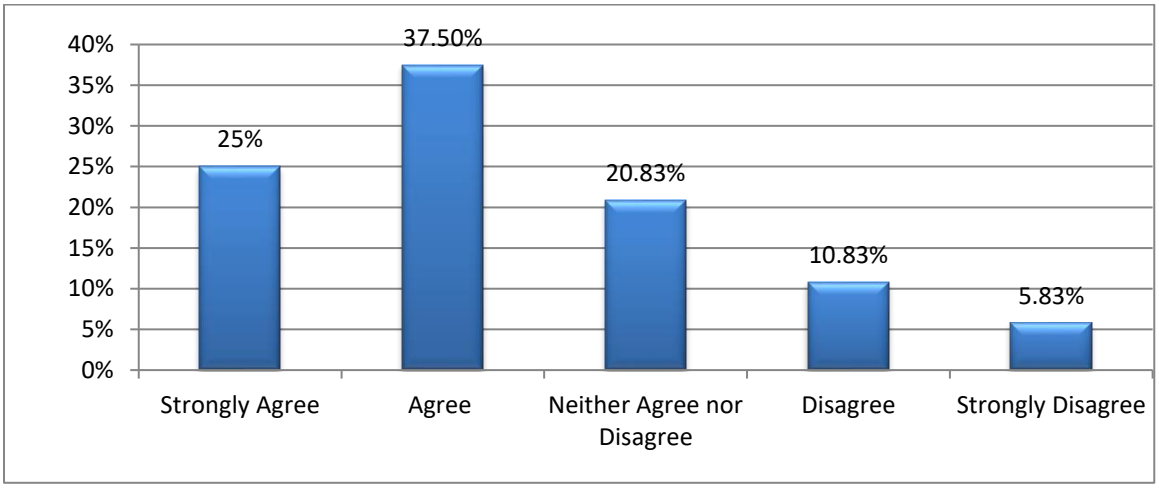

Chart 4.1.9 – Chart Showing know about the success and failure of ERP system

INTERPRETATION

Above Chart 4.1.9 shows response on know about the success and failure of ERP system, 25% of the respondents are strongly agree, 37.5% of the respondents are agree, 20.83% of the respondents are neither agree nor disagree, 10.83% of the respondents are disagree and 5.83% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Agree.

Table 4.1.10 – Table Showing ERP results to better accounting management

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	54	45%
2.	Agree	58	48.33%
3.	Neither Agree nor Disagree	4	3.33%
4.	Disagree	3	2.5%
5.	Strongly Disagree	1	.83%
	Total	**120**	**100**

Source: Primary data

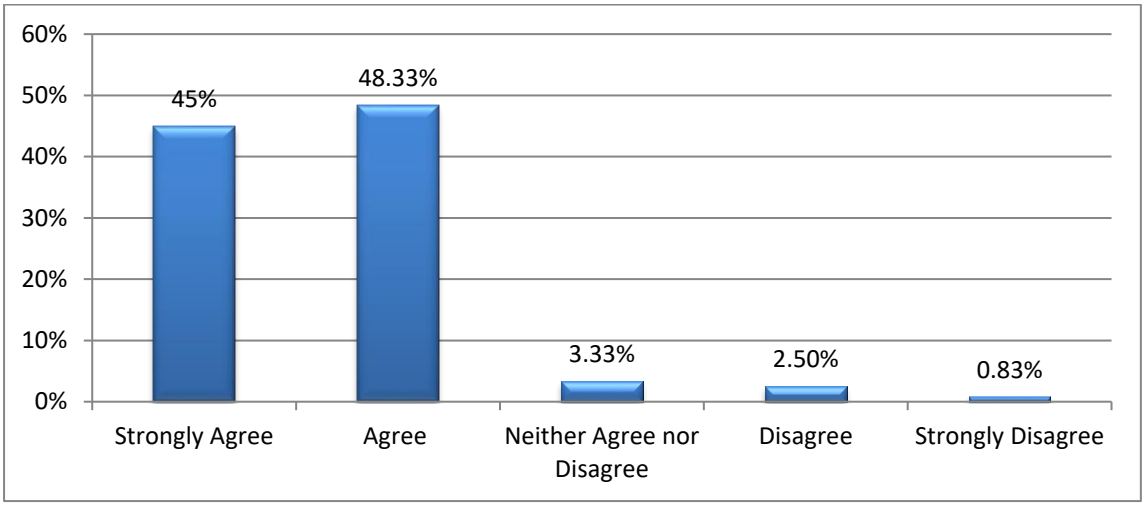

Chart 4.1.10 – Chart Showing ERP results to better accounting management

INTERPRETATION

Above Chart 4.1.10 shows response on ERP results to better accounting management, 45% of the respondents are strongly agree, 48.33% of the respondents are agree, 3.33% of the respondents are neither agree nor disagree, 2.50% of the respondents are disagree and.83% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Agree.

Table 4.1.11 – Table Showing ERP results to better sales management

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	22	18.33%
2.	Agree	49	40.83%
3.	Neither Agree nor Disagree	26	21.67%
4.	Disagree	16	13.33%
5.	Strongly Disagree	7	5.83%
	Total	**120**	**100**

Source: Primary data

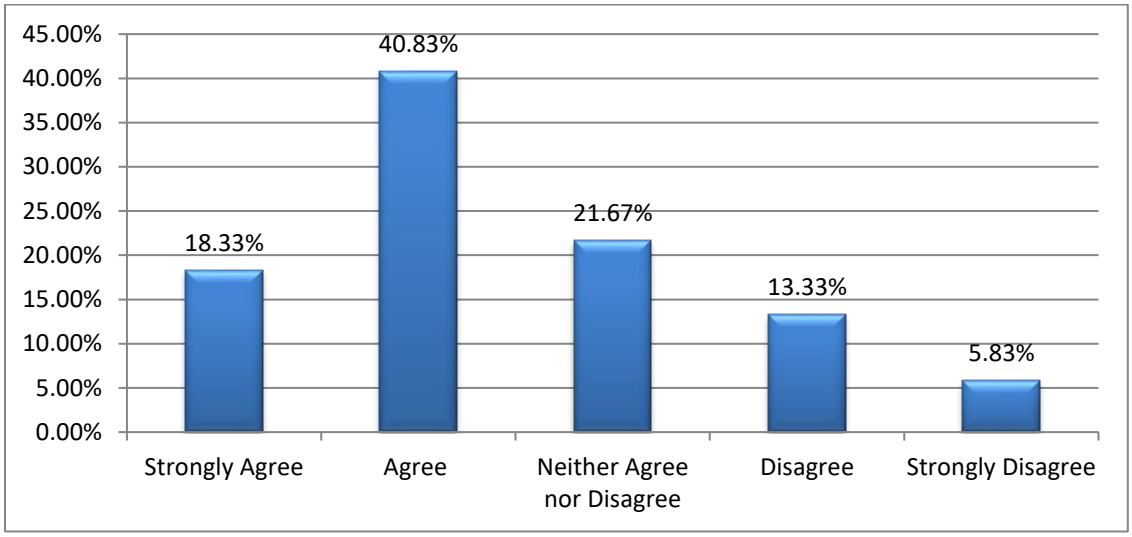

Chart 4.1.11 – Chart Showing ERP results to better sales management

INTERPRETATION

Above Chart 4.1.11 shows response on ERP results to better sales management, 18.33% of the respondents are strongly agree, 40.83% of the respondents are agree, 21.67% of the respondents are neither agree nor disagree, 13.33% of the respondents are disagree and 5.83% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Agree.

Table 4.1.12 – Table Showing ERP results to better inventory management

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	29	24.17%
2.	Agree	33	27.5%
3.	Neither Agree nor Disagree	35	29.17%
4.	Disagree	16	13.33%
5.	Strongly Disagree	7	5.83%
	Total	**120**	**100**

Source: Primary data

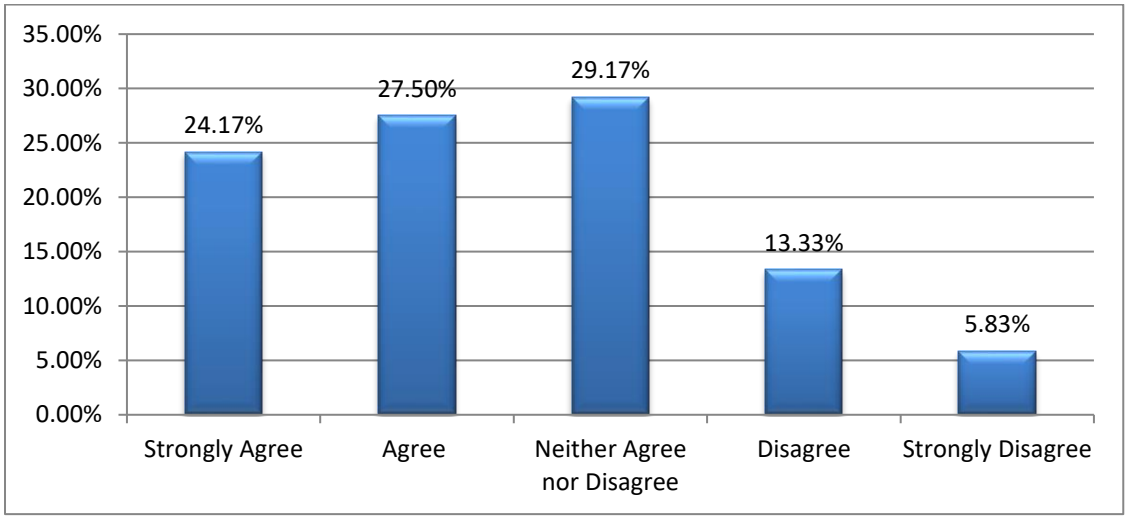

Chart 4.1.12 – Chart Showing ERP results to better inventory management

INTERPRETATION

Above Chart 4.1.12 shows response on ERP results to better inventory management, 24.17% of the respondents are strongly agree, 27.5% of the respondents are agree, 29.17% of the respondents are neither agree nor disagree, 13.33% of the respondents are disagree and 5.83% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are neither agree nor disagree

Table 4.1.13 – Table Showing ERP results to better HR management

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	23	19.17%
2.	Agree	49	40.83%
3.	Neither Agree nor Disagree	27	22.5%
4.	Disagree	15	12.5%
5.	Strongly Disagree	6	5%
	Total	**120**	**100**

Source: Primary data

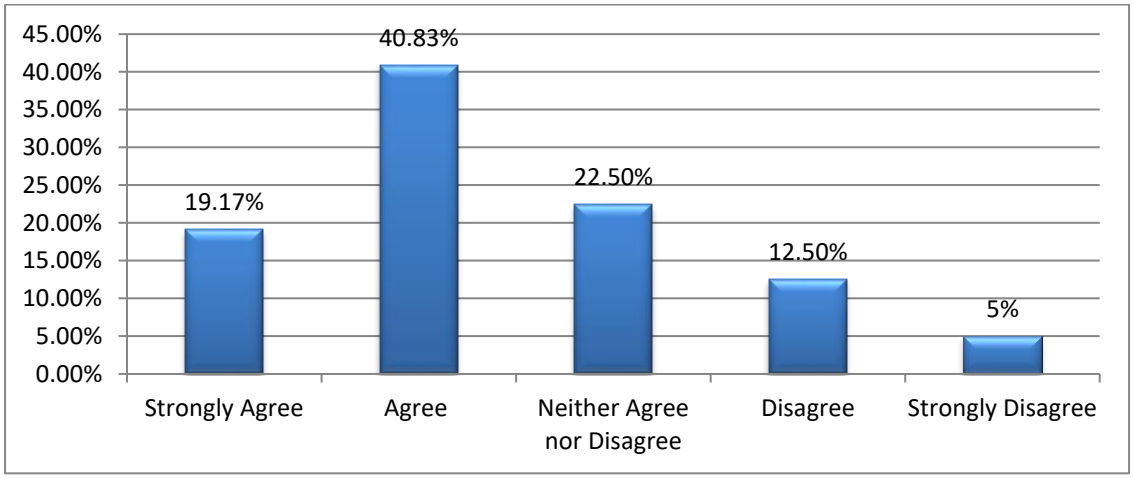

Chart 4.1.13 – Chart Showing ERP results to better HR management

INTERPRETATION

Above Chart 4.1.13 shows response on ERP results to better HR management, 19.17% of the respondents are strongly agree, 40.83% of the respondents are agree, 22.5% of the respondents are neither agree nor disagree, 12.5% of the respondents are disagree and 5% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Agree.

Table 4.1.14 – Table Showing ERP results to better data management and analysis

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	35	29.17%
2.	Agree	45	37.5%
3.	Neither Agree nor Disagree	18	15%
4.	Disagree	12	10%
5.	Strongly Disagree	10	8.33%
	Total	**120**	**100**

Source: Primary data

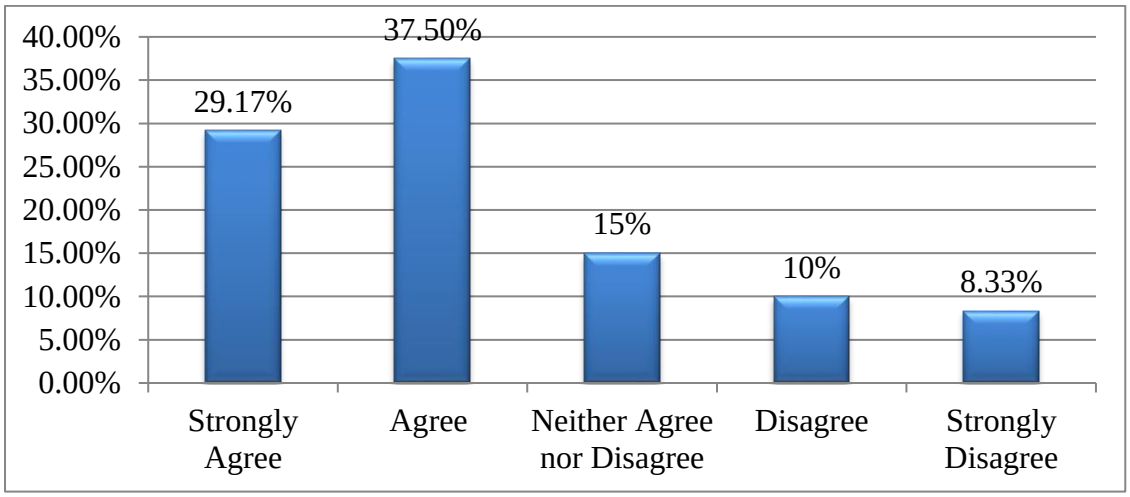

Chart 4.1.14 – Chart Showing ERP results to better data management and analysis

INTERPRETATION

Above Chart 4.1.14 shows response on ERP results to better data management and analysis, 29.17% of the respondents are strongly agree, 37.5% of the respondents are agree, 15% of the respondents are neither agree nor disagree, 10% of the respondents are disagree and 8.33% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Agree.

Table 4.1.15 – Table Showing Facilitate improved services to customer and suppliers

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	69	57.5%
2.	Agree	42	35%
3.	Neither Agree nor Disagree	5	4.17%
4.	Disagree	4	3.33%
	Total	**120**	**100**

Source: Primary data

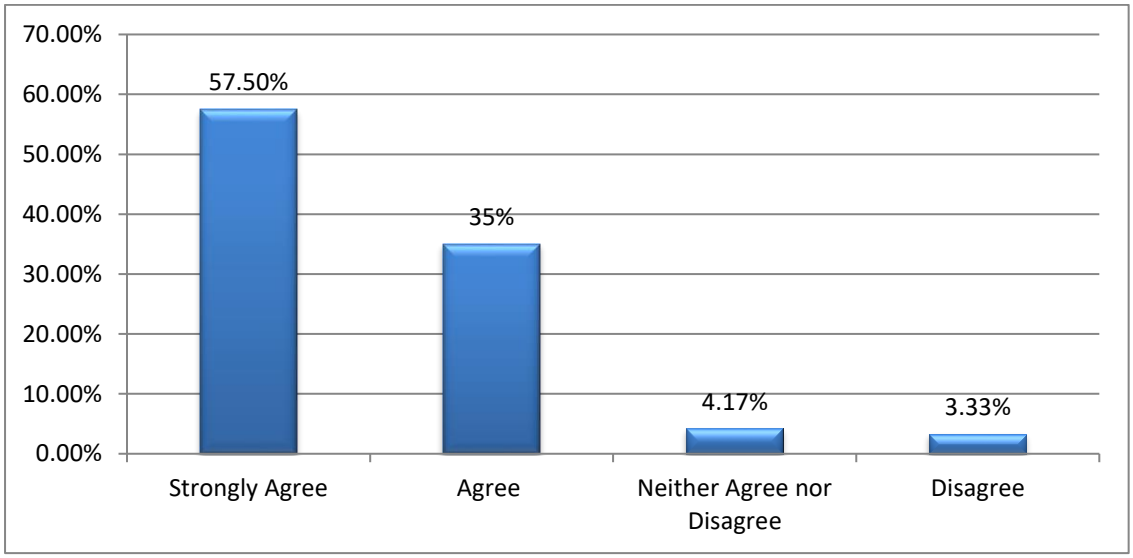

Chart 4.1.15 – Chart Showing Facilitate improved services to customer and suppliers

INTERPRETATION

Above Chart 4.1.15 shows response on facilitate improved services to customer and suppliers, 57.5% of the respondents are strongly agree, 35% of the respondents are agree, 15% of the respondents are neither agree nor disagree, 4.17% of the respondents are disagree and 3.33% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Strongly Agree.

Table 4.1.16 – Table Showing Increased institutional accountability

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	24	20%
2.	Agree	45	37.5%
3.	Neither Agree nor Disagree	39	32.5%
4.	Disagree	8	6.67%
5.	Strongly Disagree	4	3.33%
	Total	**120**	**100**

Source: Primary data

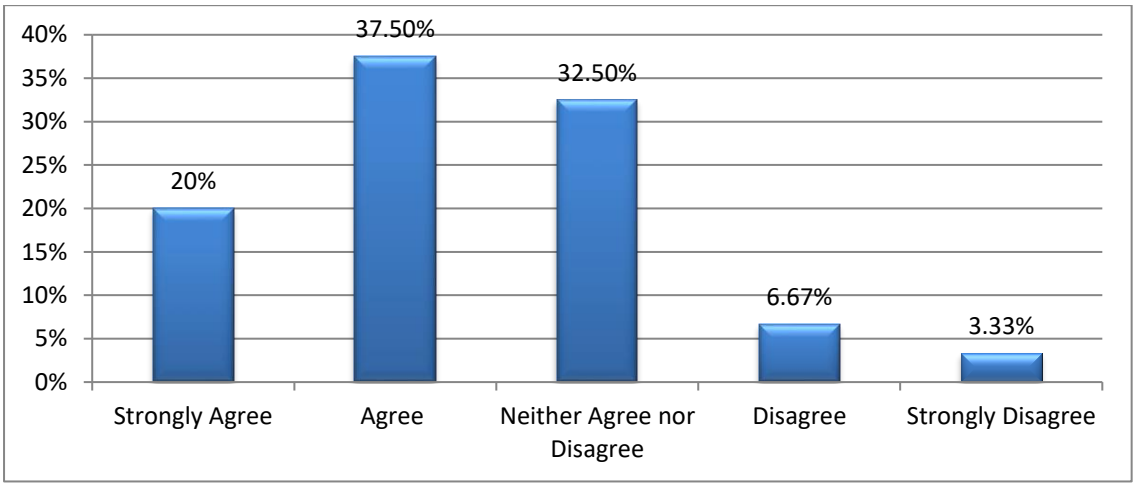

Chart 4.1.16 – Chart Showing Increased institutional accountability

INTERPRETATION

Above Chart 4.1.16 shows response on Increased institutional accountability, 20% of the respondents are strongly agree, 37.5% of the respondents are agree, 32.5% of the respondents are neither agree nor disagree, 6.67% of the respondents are disagree and 3.33% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Agree.

Table 4.1.17 – Table Showing Enhanced organization business performance

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	36	30%
2.	Agree	44	36.67%
3.	Neither Agree nor Disagree	22	18.33%
4.	Disagree	14	11.67%
5.	Strongly Disagree	4	3.33%
	Total	**120**	**100**

Source: Primary data

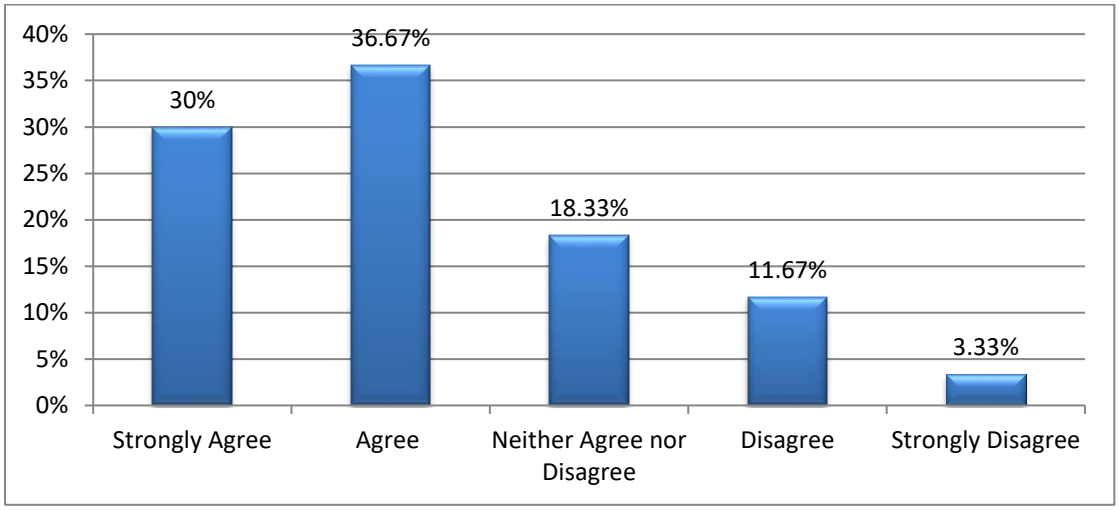

Chart 4.1.17 – Chart Showing Enhanced organization business performance

INTERPRETATION

Above Chart 4.1.17 shows response on Enhanced organization business performance, 30% of the respondents are strongly agree, 36.67% of the respondents are agree, 18.33% of the respondents are neither agree nor disagree, 11.67% of the respondents are disagree and 3.33% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Agree.

Table 4.1.18 – Table Showing Reduced organizations business risks

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	27	22.5%
2.	Agree	47	39.17%
3.	Neither Agree nor Disagree	25	20.83%
4.	Disagree	14	11.67%
5.	Strongly Disagree	7	5.83%
	Total	**120**	**100**

Source: Primary data

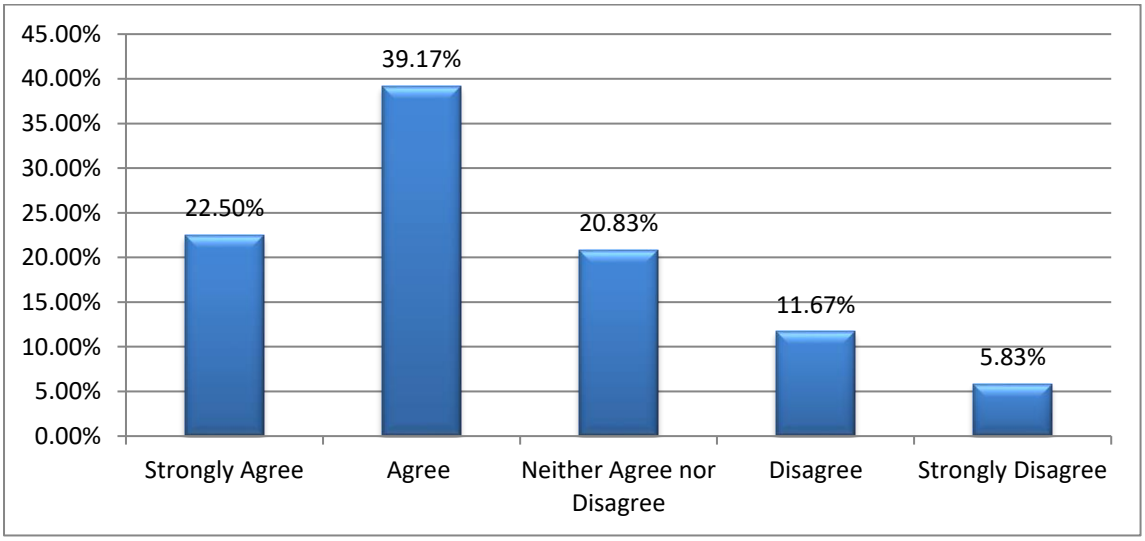

Chart 4.1.18 – Chart Showing Reduced organizations business risks

INTERPRETATION

Above Chart 4.1.18 shows response on reduced organizations business risks, 22.50% of the respondents are strongly agree, 39.17% of the respondents are agree, 20.83% of the respondents are neither agree nor disagree, 11.67% of the respondents are disagree and 5.83% of the respondents are strongly disagree.

INFERENCE

Majority of respondents are Agree.

Table 4.1.19 – Table showing Will enhance the transparency in the system

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Strongly Agree	39	32.5%
2.	Agree	48	40%
3.	Neither Agree nor Disagree	19	15.83%
4.	Disagree	7	5.83%
5.	Strongly Disagree	7	5.83%
	Total	**120**	**100**

Source: Primary data

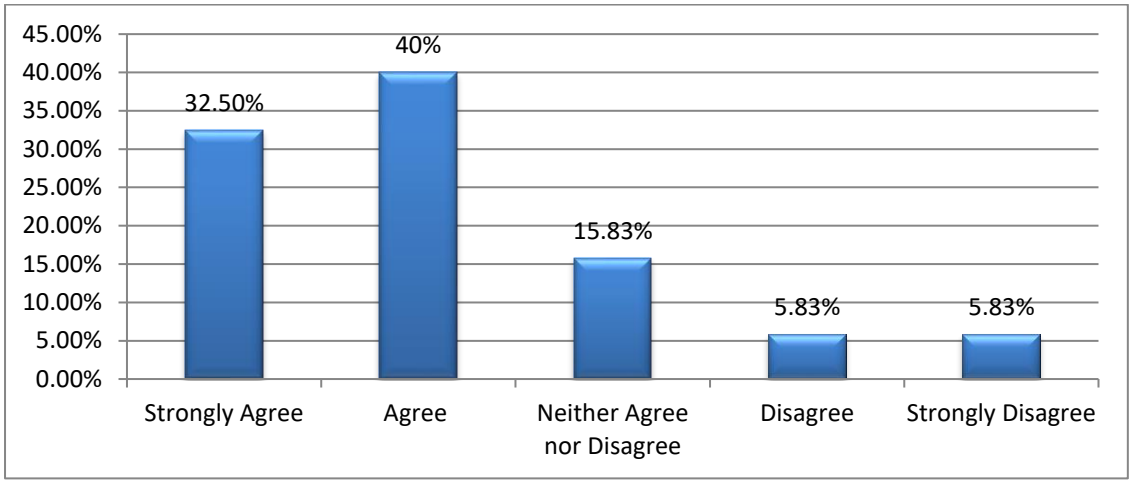

Chart 4.1.19 – Chart Showing Will enhance the transparency in the system

INTERPRETATION

Above Chart 4.1.19 shows response on will enhance the transparency in the system, 32.5% of the respondents are strongly agree, 40% of the respondents are agree, 15.83% of the respondents are neither agree nor disagree, 5.83% of the respondents are disagree and 5.83% of the respondents are strongly disagree.

INFERENCE

Majority of the respondents are agree

Table 4.1.20 – Table Showing Satisfaction about ERP results to productivity Improvement

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Highly Satisfied	91	75.83%
2.	Satisfied	24	20%
3.	Neither Satisfied nor Dissatisfied	2	1.67%
4.	Dissatisfied	3	2.5%
	Total	**120**	**100**

Source: Primary data

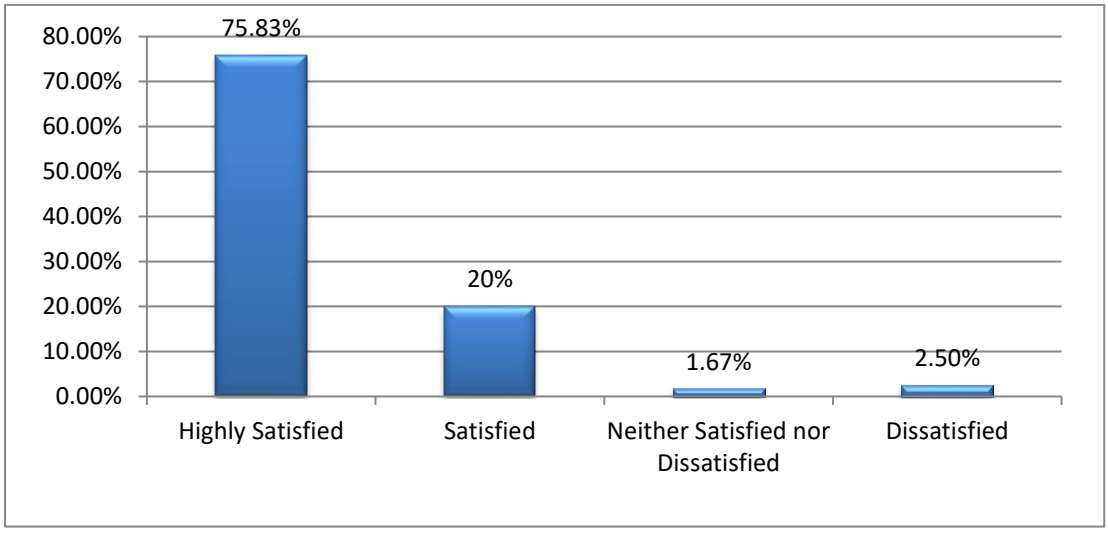

Chart 4.1.20 – Chart Showing Satisfaction about ERP results to productivity Improvement

INTERPRETATION

Above Chart 4.1.20 shows response on satisfaction about ERP results to productivity Improvement, 75.83% of the respondents are highly satisfied, 20% of the respondents are satisfied and 1.67% of the respondents are neither satisfied nor dissatisfied.

INFERENCE

Majority of the respondents are highly satisfied

Table 4.1.21 – Table Showing Satisfaction about ERP results to Order management Improvement

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Highly Satisfied	21	17.5%
2.	Satisfied	52	43.33%
3.	Neither Satisfied nor Dissatisfied	30	25%
4.	Dissatisfied	14	11.67%
5.	Highly Dissatisfied	3	2.5%
	Total	**120**	**100**

Source: Primary data

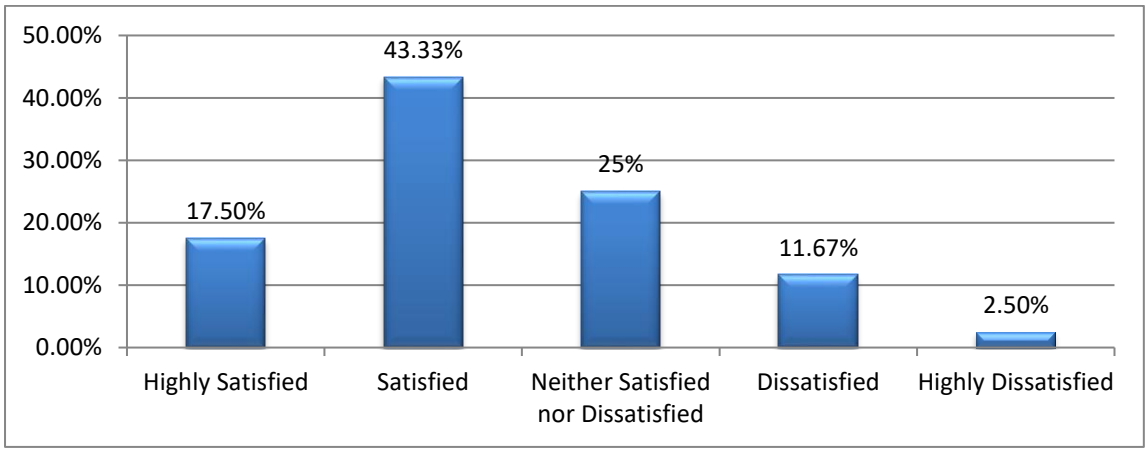

Chart 4.1.21 – Chart Showing Satisfaction about ERP results to Order management Improvement

INTERPRETATION

Above Chart 4.1.21 shows response on satisfaction about ERP results to Order management Improvement, 17.5% of the respondents are highly satisfied, 43.33% of the respondents are satisfied, 25% of the respondents are neither satisfied nor dissatisfied, 11.67% of the respondents are dissatisfied and 2.5% of the respondents are highly dissatisfied.

INFERENCE

Majority of the respondents are satisfied

Table 4.1.22 – Table Showing Satisfaction about ERP results to Overall cost reduction

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Highly Satisfied	24	20%
2.	Satisfied	40	33.33%
3.	Neither Satisfied nor Dissatisfied	36	30%
4.	Dissatisfied	15	12.5%
5.	Highly Dissatisfied	5	4.17%
	Total	**120**	**100**

Source: Primary data

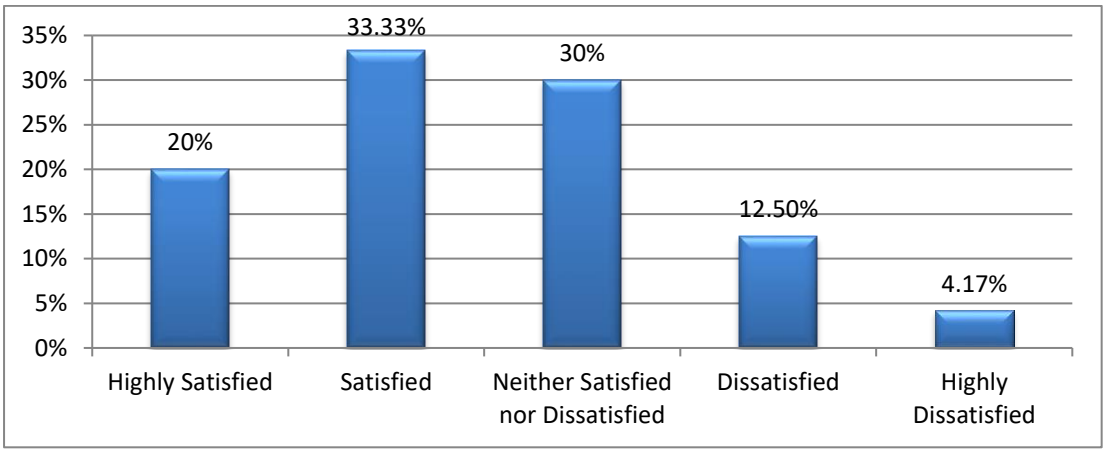

Chart 4.1.22 – Chart Showing Satisfaction about ERP results to Overall cost reduction

INTERPRETATION

Above Chart 4.1.22 shows response on satisfaction about ERP results to Overall cost reduction, 20% of the respondents are highly satisfied, 33.33% of the respondents are satisfied, 30% of the respondents are neither satisfied nor dissatisfied, 12.5% of the respondents are dissatisfied and 4.17% of the respondents are highly dissatisfied.

INFERENCE

Majority of the respondents are satisfied

Table 4.1.23 – Table Showing Satisfaction about ERP results to Profit Improvement

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Highly Satisfied	36	30%
2.	Satisfied	54	45%
3.	Neither Satisfied nor Dissatisfied	15	12.5%
4.	Dissatisfied	10	8.33%
5.	Highly Dissatisfied	5	4.17%
	Total	**120**	**100**

Source: Primary data

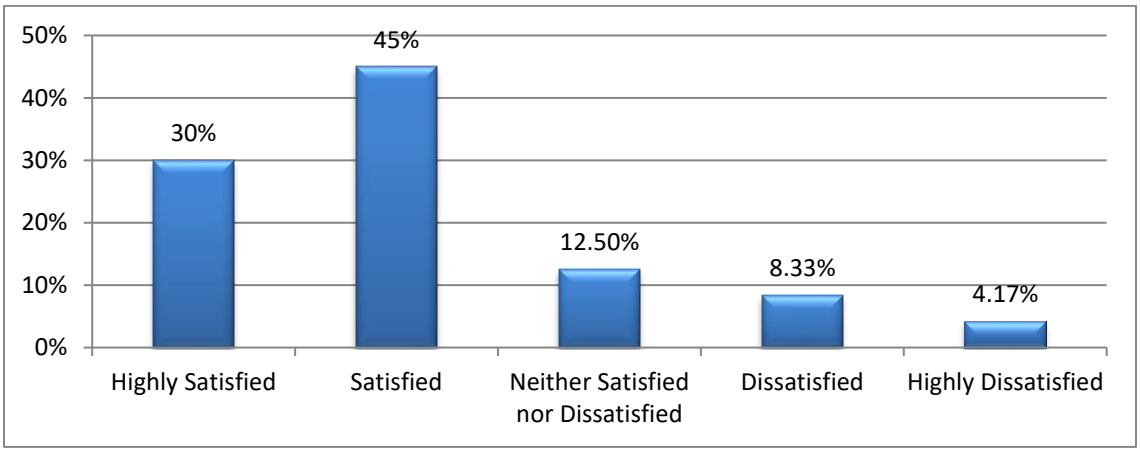

Chart 4.1.23 – Chart Showing Satisfaction about ERP results to Profit Improvement

INTERPRETATION

Above Chart 4.1.23 shows response on satisfaction about ERP results to Profit Improvement, 30% of the respondents are highly satisfied, 45% of the respondents are satisfied, 12.5% of the respondents are neither satisfied nor dissatisfied, 8.33% of the respondents are dissatisfied and 4.17% of the respondents are highly dissatisfied.

INFERENCE

Majority of the respondents are satisfied

Table 4.1.24 – Table Showing Satisfaction about ERP results to Transportation/Logistics cost reduction

S. No.	Particulars	No. of respondents	Percentage (%)
1.	Highly Satisfied	52	43.33%
2.	Satisfied	41	34.17%
3.	Neither Satisfied nor Dissatisfied	10	8.33%
4.	Dissatisfied	10	8.33%
5.	Highly Dissatisfied	7	5.83%
	Total	**120**	**100**

Source: Primary data

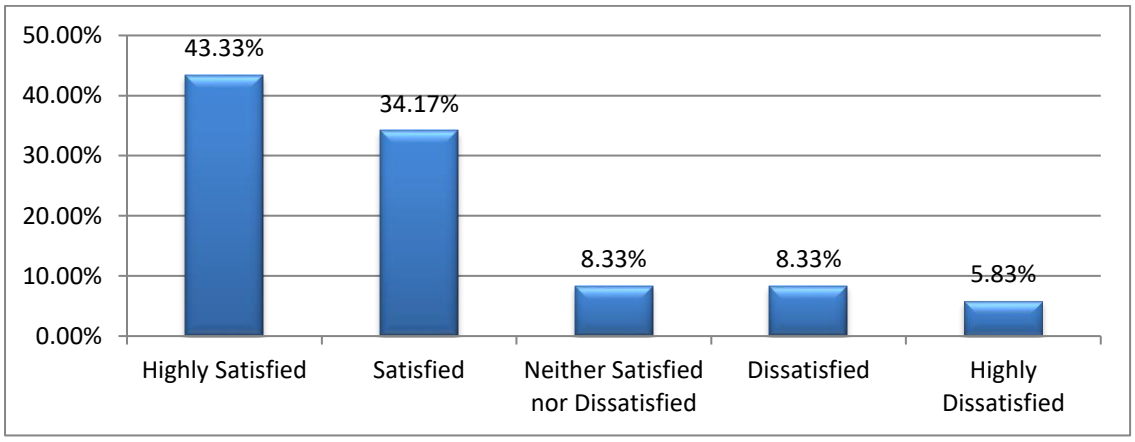

Chart 4.1.24 – Chart Showing Satisfaction about ERP results to Transportation/Logistics cost reduction

INTERPRETATION

Above Chart 4.1.24 shows response on satisfaction about ERP results to Transportation/Logistics cost reduction, 43.33% of the respondents are highly satisfied, 34.17% of the respondents are satisfied, 8.33% of the respondents are neither satisfied nor dissatisfied, 8.33% of the respondents are dissatisfied and 5.83% of the respondents are highly dissatisfied

INFERENCE

Majority of the respondents are highly satisfied

4.2 WEIGHTED AVERAGE METHOD

Table 4.2.1 - Table Showing Satisfaction of ERP

	Highly Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Highly Dissatisfied
ERP results to productivity Improvement	91	24	2	3	0
Order management Improvement	21	52	30	14	3
Overall cost reduction	24	40	36	15	5
Profit Improvement	36	54	15	10	5
Transportation/Logistics cost reduction	52	41	10	10	7

Table 4.2.2 – Table Showing Weighted average method on Satisfaction of ERP

	Highly Satisfied (5)	Satisfied (4)	Neither Satisfied nor Dissatisfied (3)	Dissatisfied (2)	Highly Dissatisfied (1)	**∑XiWi**	**∑XiWi/15**	**RANK**
ERP results to productivity Improvement	455	96	6	6	0	563	37.53333	1
Order management Improvement	105	208	90	28	3	434	28.93333	4
Overall cost reduction	120	160	108	30	5	423	28.2	5
Profit Improvement	180	216	45	20	5	466	31.06667	3
Transportation/Logistics cost reduction	260	164	30	20	7	481	32.06667	2

$$W=\sum Xi * Wi / \sum Wi$$

$$\sum Wi=5+4+3+2+1=15$$

Inference

From the weighted average method, it is found that ERP results to productivity Improvement.

4.3 CHI SQUARE ANALYSIS

4.3.1 HYPOTHESIS

Chi-square analysis of respondents working department and management provide special training program about ERP

Ho – There is no relationship between respondents working department and management provide special training program about ERP.

H1 – There is relationship between respondents working department and management provide special training program about ERP.

Table 4.3.1 - Table Showing Chi-Square Analysis I

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.696[a]	16	.621
Likelihood Ratio	15.034	16	.522
Linear-by-Linear Association	2.965	1	.085
N of Valid Cases	120		

a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is 1.17.

Inference

The P value is .621 which is greater than .05. So, Ho is accepted. There is no relationship between respondents working department and management provide special training program about ERP.

4.3.2 HYPOTHESIS

Chi-square analysis of management calculates return on investment (ROI) and profit improvement

Hypothesis

Ho – There is no relationship between management calculates return on investment (ROI) and profit improvement.

H1 – There is relationship between management calculates return on investment (ROI) and profit improvement.

Table 4.3.2 - Table Showing Chi-Square Analysis I

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.800[a]	16	.008
Likelihood Ratio	29.645	16	.020
Linear-by-Linear Association	.342	1	.558
N of Valid Cases	120		

a. 16 cells (64.0%) have expected count less than 5. The minimum expected count is .13.

Inference

The P value is .008 which is less than .05. So, Ho is rejected and H1 is accepted. There is relationship between management calculates return on investment (ROI) and profit improvement.

CHAPTER - 5

FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS

- Majority of 87.5% respondents are male.
- Majority of 47.5% respondents are aged below 25.
- Majority of 21.67% respondents are working in production and sales department.
- Majority of 46.7% respondents have working experience less than 2 years.
- Majority of 49.17% respondents are strongly agree, response on adequate skill and experience to work with ERP software.
- Majority of 50.83% respondents are agree, response on compare to earlier ERP Systems, current ERP system is better.
- Majority of 33.33% respondents are neither agree nor disagree, response on management calculates the return on investment (ROI) from an ERP system before it can be implemented.
- Majority of 50.83% respondents are agree, response on management provide special training program about ERP.
- Majority of 37.5% respondents are agree, response on know about the success and failure of ERP system.
- Majority of 48.33% respondents are agree, response on ERP results to better accounting management.
- Majority of 40.83% respondents are agree, response on ERP results to better sales management.
- Majority of 29.17% respondents are neither agree nor disagree, response on ERP results to better inventory management.

- Majority of 40.83% respondents are agree, response on ERP results to better HR management.
- Majority of 37.5% respondents are agree, response on ERP results to better data management and analysis.
- Majority of 57.5% respondents are strongly agree, response on facilitate improved services to customer and suppliers.
- Majority of 37.5% respondents are agree, response on Increased institutional accountability.
- Majority of 36.67% respondents are agree, response on Enhanced organization business performance.
- Majority of 39.17% respondents are neither agree nor disagree, response on reduced organizations business risks.
- Majority of 40% respondents are agree, response on will enhance the transparency in the system.
- Majority of 75.83% respondents are highly satisfied, response on satisfaction about ERP results to productivity Improvement.
- Majority of 43.33% respondents are satisfied, response on satisfaction about ERP results to Order management Improvement.
- Majority of 33.33% of the respondents are satisfied, response on satisfaction about ERP results to Overall cost reduction.

5.2 SUGGESTIONS

- The commitment of top management has been recognized as one of the most important elements in the successful implementation of ERP system.
- The top management is to provide sufficient financial support and adequate resources for building a successful system.
- Implementing an ERP package is a complex and costly undertaking, so it's essential to choose the appropriate vendor, adequate scalability features, suitability of H/W and user friendliness of product depending on the size and structure of an organization.
- Project management related factors like Clear goal and objective, Effective project management, Reasonable expectation, Other dept. participation, Change request, Implementation strategy, Data conversion, Clear & effective communication are very critical for a successful ERP implementation.
- Team member should understand the inner workings of their respective departments thoroughly and the team must have can do attitude.
- ERP systems have become the most common strategy for most large companies. SMEs too moving towards ERP systems. They need to adopt a proactive approach towards ERP and consider it as a business solution.
- The success of the system is fully dependent on how the employees utilize it. The management should provide special training to employee’s about ERP system.
- As the customization is problematic in ERP implementation, the management should manage those problems in future.
- As the ERP system required extensive training requirements and take resources from daily operations, the management should appoint the trained persons to do the tasks.

5.3 CONCLUSION

ERP systems put in place a disciplined way of working and provide better visibility to the working of the organization. In developing countries, SMEs are the backbone of the economy and today they faced global competition. It is found that there are number of powerful advantages of Enterprise Resource Planning. It has been used to solve a number of problems that have plagued organizations in the past. ERP systems have become the most common business strategy for most large companies. SMEs too are moving towards ERP systems. They need to adopt a proactive approach towards ERP and consider it as a business solution rather than a mere IT solution. Though the ERP market is growing and ERP vendors have shifted their focus to the SME segment, there are several issues to be resolved. SMEs need to be made 'ERP aware'. Vendors need to micro verticalise the ERP solution to better meet the requirements of SMEs. Perhaps one of the most important advantages of ERP is its accounting applications. It can integrate the cost, profit, and revenue information of sales that are made, and it can be presented in a granular way. Enterprise Resource Planning allows the company to keep better track of their process. Therefore it becomes imperative for them to look for means of responding to the dynamic markets. Since the financial resources of SMEs are limited, the cost of ERP system needs to be further reduced.

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APPENDIX - I QUESTIONNAIRE

A STUDY ON ERP SOFTWARE RELATED TO MANUFACTURING INDUSTRY

I am AVINASH, pursuing Masters of Business Administration in Sathyabama Institute of Science & Technology, Chennai. I am endeavoring to conclude a research study on - "ERP related to manufacturing industry". These records are being collected for academic purposes only. Please take a few moments to complete the survey.

Name : _____

Gender

a) Male

b) Female

Age

c) Below 25

d) 25 - 30

e) 30 - 35

f) Above 35

Department

a) Production

b) Sales

c) HR

d) Finance

e) R&D

Work Experience

a) Less than 2 years

b) 2 - 3 years

c) 3 - 4 years

d) Greater than 4 years

Awareness of ERP

	Strongly Agree	Agree	Nether Agree nor Disagree	Disagree	Strongly Disagree
Do you have adequate skill and experience to work with ERP software?					
Compare to earlier ERP Systems, current ERP system is better.					
Did the management calculates the return on investment (ROI) from an ERP system before it can be implemented?					
Did the management provide special training program about ERP?					
Do you know about the success and failure of ERP system?					

Importance of ERP

	Strongly Agree	Agree	Nether Agree nor Disagree	Disagree	Strongly Disagree
ERP results to better accounting management					
ERP results to better sales management					
ERP results to better inventory management					
ERP results to better HR management					
ERP results to better data management and analysis					

Benefits of ERP

	Strongly Agree	Agree	Nether Agree nor Disagree	Disagree	Strongly Disagree
Facilitate improved services to customer and suppliers					
Increased institutional accountability					
Enhanced organization business performance					
Reduced organizations business risks					
Will enhance the transparency in the system					

Satisfaction of ERP

	Highly Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Highly Dissatisfied
ERP results to productivity Improvement					
Order management Improvement					
Overall cost reduction					
Profit Improvement					
Transportation/Logistics cost reduction					

APPENDIX – II (ARTICLE)

A STUDY ON ERP SOFTWARE RELATED TO MANUFACTURING INDUSTRY

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ABSTRACT

There are various problems associated with manufacturing industries. Some of the problem are non-availability of highly skilled labor at affordable costs, absence of adequate knowledge, technology, low production capacity, ineffective marketing strategy, constraints on modernization & expansions, identification of new markets etc., It can be overcome by implementing powerful IT solution like ERP which offers multiple benefits to face global competition. Aim of the study is about ERP software related to manufacturing industry. The study used SPSS analytical tools such as Chisquare analysis, weighted average method. This tool is used and found how the employees facing challenges and satisafaction level of the software. Based on the respondents we have to analyse the problem in ERP software related to manufacturing industries.

Keywords: ERP, Manufacturing Industries, Employees, Technology.

INTRODUCTION

Enterprise resource planning (ERP) system is a business management system that comprises integrated sets of comprehensive software, which can be used, when successfully implemented, to manage and integrate all the business functions within an organization. These sets usually include a set of mature business applications and tools for financial and cost accounting, sales and distribution, materials management, human

resource, production planning and computer integrated manufacturing, supply chain, and customer information.

These packages have the ability to facilitate the flow of information between all supply chain processes (internal and external) in an organization. Furthermore, an ERP system can be used as a tool to help improve the performance level of a supply chain network by helping to reduce cycle times.It has traditionally been applied in capital-intensive industries such as manufacturing, construction, aerospace and defense.

REVIEW OF LITERATURE

Gibson, (1999), ERP system integrates all business process and functions enabling organizations to improve efficiency. Davenport (1998) states that, “the business world’s embrace of enterprise systems may in fact be the most important development in the corporate use of information technology in the 1990s.” However, ERP’s contributions to organizations strategic value creation efforts depend on many critical factors including its right implementation and the effective management of its operational performance during its lifecycle.

Jacobs, Bendoly (2003), In this research paper there is a considerable volume of research focused on the specific issues of ERP; however, there are no consensus on the definition and the issues related to ERP. According to, “Enterprise resource planning (ERP) has come to mean many things over last several decades. Divergent applications by practitioners and academics, as well as by researchers in alternative fields of studies, has allowed for considerable proliferation on the topic and for a considerable confusion regarding the meaning of the term.”

Johansson (2011), The primary focus of the relationship between factors influencing selection of implementation approach and companies ability to stay within budget when implementing ERPs. The main findings are that the number of implemented modules influences selection of an implementation approach, companies with information strategies are more likely to stay within budget regarding ERP systems implementation.

Gable and Rosemann (1999), A survey of the literature on ERP and its implementation, operational performance, and other issues related to its lifecycle. This study provides a survey of literature on ERP published in the major information systems, related journals, and conference proceedings during the period 1997–2010. It categorizes them through an ERP life cyclebased framework that is structured in phases. Originally, this bibliography started as an extension of the one developed by, which focused on ERP and measurements of ERP.

Akkermans HA, Bogerd P, Yucesan E, (2003), The term Enterprise Resource Planning is originally coined in 1990 by The Gartner Group to describe the next generation of MRP II software. Historically, ERP evolved from material requirement planning (MRP) and manufacturing resource planning MRP II systems of the 1970s and the 1980s, respectively. MRP and MRP II systems were designed to systemically link different aspects of process information within specific business context such as manufacturing. Within the literature, different authors have defined ERP in a different way.

Boersma K, Kingma S, (2005), They can change the business process to accommodate the system, which may mean deep changes in long-established ways of doing business and reorganize important people's roles and responsibilities. However, any redesign and changes of a business process that the system planned to support should not be carried out with the intent of supporting the planned system.

OBJECTIVES OF THE STUDY

- To study on importance of ERP implementation in manufacturing industry.
- To analyze about the employee awareness and opinion on ERP system.
- To study on impact, various advantages and benefits of ERP system.
- To measure the satisfaction level of employees on benefits of ERP system.

RESEARCH METHODOLOGY

Descriptive research design is used for the study. It includes questionnaire for collection of data through field study, collecting data from target respondents, processing and analyzing the data and arriving at conclusions.It includes sampling design, sample location, sampling frame, sampling unit and sample size. The population of the study will be employees of various manufacturing industry in Chennai having knowledge about ERP software.The response are taken by questionnaire from 120 respondents. Findings and interpretation of the response are analysed by percentage analysis, weighted average method, Chi-square analysis.

RESULT AND DISCUSSION

CHI-SQUARE ANALYSIS

Chi-square analysis of respondents working department and management provide special training program about ERP

Ho – There is no relationship between respondents working department and management provide special training program about ERP.

Ha – There is relationship between respondents working department and management provide special training program about ERP.

Table 4.3.1 - Table Showing Chi-Square Analysis I

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.696[a]	16	.621
Likelihood Ratio	15.034	16	.522
Linear-by-Linear Association	2.965	1	.085
N of Valid Cases	120		
(80.0%) have expected count less than 5. The minimum count is 1.17.			

Inference

The P value is .621 which is greater than .05. So, Ho is accepted. There is no relationship between respondents working department and management provide special training program about ERP.

WEIGHTED AVERAGE METHOD

Table 4.2.2 – Table Showing Weighted average method on Satisfaction of ERP

	Highly Satisfied (5)	Satisfied (4)	Neither Satisfied nor Dissatisfied (3)	Dissatisfied (2)	Highly Dissatisfied (1)	**∑XiWi**	**∑XiWi/15**	**RANK**
ERP results to productivity Improvement	455	96	6	6	0	563	37.53333	1
Order management Improvement	105	208	90	28	3	434	28.93333	4
Overall cost reduction	120	160	108	30	5	423	28.2	5
Profit Improvement	180	216	45	20	5	466	31.06667	3
Transportation/Logistics cost reduction	260	164	30	20	7	481	32.06667	2

$$W=\sum Xi * Wi / \sum Wi$$

$$\sum Wi=5+4+3+2+1=15$$

Inference

From the weighted average method, it is found that ERP results to productivity Improvement.

SUGGESTIONS

- The success of the system is fully dependent on how the employees utilize it. The management should provide special training to employee's about ERP system.
- All the employees should known about success and failure of ERP system. The management should consider about the changes need in current ERP system

CONCLUSION

ERP systems put in place a disciplined way of working and provide better visibility to the working of the organization. In developing countries, SMEs are the backbone of the economy and today they faced global competition. It is found that there are number of powerful advantages of Enterprise Resource Planning. It has been used to solve a number of problems that have plagued organizations in the past. ERP systems have become the most common business strategy for most large companies. SMEs too are moving towards ERP systems. They need to adopt a proactive approach towards ERP and consider it as a business solution rather than a mere IT solution. Though the ERP market is growing and ERP vendors have shifted their focus to the SME segment, there are several issues to be resolved.

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